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Hazardous Materials Regulations Board

■

HAZARD INFORMATION SYSTEM AND MISCELLANEOUS PROPOSALS

Notice of Proposed Rulemaking

DEPARTMENT OF TRANSPORTATION

Hazardous Materials Regulations Board

[49 CFR Part 172]

[Docket No. HM-103; Notice No. 73-10]

TRANSPORTATION OF HAZARDOUS MATERIALS

Hazard Information System and Miscellaneous Proposals; Notice of Proposed Rule Making

The Hazardous Materials Regulations Board is considering the adoption of amendments to the Department's Hazardous Materials Regulations (1) to adopt a hazard information system; (2) to consolidate the Hazardous Materials communications regulations; and (3) to make miscellaneous changes to the documentation, marking, labeling, and placarding requirements.

On June 27, 1972, the Board published an advance notice of proposed rule making under Docket No. HM-103 (37 FR 12660) proposing a hazard information system and miscellaneous changes to the communications regulations. Interested persons were invited to comment on the proposals made by submission of written comments. A large number of comments were received by the Board for its review and consideration.

Many of the comments contained constructive suggestions and criticism while others contained only expressions of support or non-support for the advance proposals. All comments received have been reviewed and considered. No attempt is being made in this preamble to address all of the comments and suggestions submitted; therefore, commenters should study the proposals made in this Notice as compared to the proposals made in the Advance Notice and resubmit their comments in the manner specified at the end of this Notice if they believe their earlier comments were possibly ignored, misinterpreted or overlooked.

The Board is aware of the significance and far reaching ramifications of the proposals made in this Notice. In the preamble of the Advance Notice, the Board stated the following:

"The need for improved hazard communications has been the subject of considerable controversy and debate during recent years. It has been pointed out that the communications requirements of the regulations (1) generally are not addressed to more than one hazard; (2) do not in all instances require disclosure of the presence of hazardous materials in transport vehicles; (3) are not addressed to the different hazard characteristics of a mixed load of hazardous materials; (4) do not provide sufficient information whereby fire fighting and other emergency response personnel can acquire adequate immediate information to handle emergency situations; and (5) are inconsistent in their application to the different modes of transport. The Board believes there are deficiencies in this area and that certain changes are necessary to provide for the adequate communication of hazards for materials in transportation. However, the Board also believes that it must consider the complexity of any regulations it adopts in this area and what is to be imposed on the personnel who will be required to follow them."

In accordance with the last sentence above, the Board has made adjustments in this proposal, based on its own investigation and the comments received, to simplify the requirements pertaining to the placarding of transport vehicles while not defeating its original purpose to any significant degree.

A number of commenters stated that the Hazard Information System is too complex. However, they did not address themselves to the basic derivation procedure for hazard information numbers as being an area of difficulty. The complexity of the system, as pointed out by some commenters, would be in the area of its application during transportation operations. These views were expressed primarily by persons who transport hazardous materials by motor vehicle and were pointed primarily to the proposed placarding requirements which will be discussed later in this preamble.

Several commenters took exception to the use of numerical identifiers (hazard information numbers) as a mechanism for conveying the hazards and multiple hazards of different materials. Two commenters suggested use of words and symbols as the primary means of conveying information. The Board does not agree with this approach and believes, contrary to the views of these commenters, that such a method would be more confusing and, possibly, misapplied. There would be no continuity in the system if such an approach were followed. There would be words on shipping papers (presumably for each kind of hazard) and symbols and words on placards and labels. It was not shown how this proposed approach would provide communication of hazards such as thermal instability, toxicity by skin absorption, and others—factors the Board believes should be considered. On the other hand, with great simplicity the use of the hazard information numbers would serve to tie together and authenticate communications of the hazards of materials on shipping papers, labels, placards, the hazard information cards, and verbal communications to assisting personnel who may or may not go to the site of an incident.

Many comments were received from individuals and organizations recommending that the Board adopt regulations that would incorporate "A Recommended System for the Identification of the Fire Hazard of Materials" commonly referred to as NFPA 704M. The Board wishes to point out that it respects the efforts and objectives of the many individuals who participated in the development of the 704M System. Their efforts are to be commended even though the 704M System is not applicable for transportation purposes as has been clearly expressed in the following statement which appears in the foreword to NFPA No. 704M.

"As originally conceived, the purpose of the guide is to safeguard the lives of those individuals who may be concerned with fires occurring in an industrial plant or storage location where the fire hazards of materials may not be readily apparent. It does not envision possible application to other situations, such as chemical laboratories, rail or truck transportation, lumber and coal storage yards and tobacco warehouses."

The Board agrees with the above statement and wishes to emphasize that it is not denying the possible value of the 704M System for purposes other than transportation.

In its comments, the International Association of Fire Chiefs (IAFC) "* * * strongly advocates that any new system of hazardous materials information must positively identify the NATURE of the hazard and the potential degree of severity." They further state that they must be given adequate instant information to allow emergency personnel "* * * to undertake actions designed to protect victims and bystanders from possible injury or death. Denying the emergency forces total instant information may be regarded as little short of criminal * * *"

In its comments, the IAFC indicated that the 704M System satisfies these requirements. The Board does not agree. On the other hand the Board is of the opinion that the proposed Hazard Information System meets the essential requirements pointed out by the IAFC.

Upon examining the 704M hazard number assignments pertaining to health, the Board found that many dissimilar materials were assigned the same numerical degree of severity. For example, chlorine, oxygen (liquid), sodium hydroxide (lye), hydrogen sulfide, and tetraethyl-lead carry the health hazard classification of 3. The required response to an accidental spill for any of these materials is quite different. The Hazard Information System recognizes these differences by assignment of the appropriate numbers to these compounds. The hazard information cards will give specific, simple, and concise information to emergency personnel. The 704M health hazard number 3 does not convey any response information aside from indicating that these materials are extremely hazardous to health. Several commenters and the IAFC were critical of the Board's intent to place reliance on a "secondary source" of information to assist emergency response personnel. After careful consideration of this aspect, the Board is convinced that no simplistic symbol, placarding or number system like 704M can possibly convey the necessary response information for the different hazard characteristics of the thousands of commodities shipped without the addition of at least a minimum of short, concise, descriptive information. The reading of this information, as presented on a hazard information card, can be readily accomplished in less than one minute.

In its comments, the IAFC also stated "The fire department and rescue squads of America, which we represent, have an inherent responsibility to function wisely and judiciously in the public welfare in emergency conditions." The fundamental purpose of the Board's proposal

herein is to provide them and other emergency personnel information whereby they can make better informed judgments on how to handle incidents involving hazardous materials during the course of transportation. It is not intended to supplant the exercise of good judgment nor to provide information that could be misconstrued or misleading. Considerable effort has been expended to make the proposed placards recognizable and distinguished from a distance by their format and color. For example, the difference between the "Explosives" placard and the "Radioactive" placard can be determined at a considerable distance from a vehicle to quickly inform persons who need this information of the kind of potential hazard they are approaching. However, the instructions contained in the proposed manual are intended to assist in handling a situation, not merely to inform that a situation exists.

Finally, the IAFC states that the descriptive legend on the hazard information card may not adequately cover the hazard of a specific material. It is recognized that in some instances more definite information might be desirable for a specific product. However, this shortcoming lies in the nature of any generic approach. The only alternative would be individual cards for each product which, obviously, would be impractical and certainly would not meet the requirements postulated by IAFC. The Board believes that the generic hazard information cards will be adequate for the vast majority of the hazardous materials shipped, and will provide the required instant information. However, it also plans to distribute spill manuals for selected materials which will complement the Hazard Information System proposed for implementation through the Hazardous Materials Regulations.

The Board has studied the users need for the hazard information manual and believes that it should aim for the vehicles used by emergency response personnel in making an initial distribution. It has been estimated that there are 392,000 police and fire vehicles used in the United States. Most responses to hazardous materials emergencies would involve the use of these types of vehicles. Also, ambulance operators, police and fire dispatchers, and others involved in emergency response activities should receive copies. Therefore, the Board plans to have 500,000 copies available for distribution, if it decides to adopt the proposals it is making in this Notice.

PROPOSED NEW PART 172

Subpart A contains a section pertaining to the applicability of the regulations in Part 172 and a section containing proposed definitions including one for a transport container.

SUBPART B—LIST OF HAZARDOUS MATERIALS

Subpart B will contain the list of hazardous materials and appears in this issue of the FEDERAL REGISTER under Docket No. HM–112.

SUBPART C—SHIPPING PAPERS

Subpart C will contain virtually all of the Department's regulations pertaining to the preparation of shipping papers for hazardous materials. Note that it does not apply to an "Other Regulated Material" (ORM) unless it is intended for transportation by air or water and then only when the Hazardous Materials Regulations apply to the material in one or both of these modes. Section 172.201 contains the requirements pertaining to the placement of the required description on a shipping paper. A number of commenters expressed concern over the Board's proposal to require hazardous materials to be described first when other materials are described on the same shipping paper. The principal concern expressed was the proposal's effect on stocks of computerized shipping papers. No explanation was provided by these commenters as to the technical feasibility of adjusting computerized programs to comply with the proposed requirements. The Board believes that sufficient and adequate information, for purposes of safety, must be conveyed on shipping papers in a uniform and readable manner. Therefore, the Board is again proposing the requirement that hazardous materials be described first for two principal reasons; (1) that the information pertaining to hazardous materials be available quickly when needed in an emergency, and (2) that the information on hazardous materials be stated first in order that carriers may more readily comply with the placarding requirements and compatibility restrictions.

In consideration of the fact that the Board is proposing to place greater emphasis on the value of shipping documents by expanding use of the DANGEROUS 01 placard, the Board believes that the hazardous material description should be shown before other descriptive information for a material on a shipping paper. This position has been strengthened by examination of some of the documents that were submitted by commenters to illustrate their difficulties if the proposal in the Advance Notice were adopted. Again, it is the Board's position that the description of hazardous materials on shipping papers be presented in a manner that will quickly give a potential user the information he must know. Therefore, the Board is proposing to require that the hazardous material description be placed before other information that is not required by the Department's safety regulations.

Recognizing that it will be necessary to allow sufficient time for shippers to adjust their documentation procedures, the Board is proposing to allow sufficient time for procedures to be adjusted.

The Board agrees with the commenter who suggested that placing the hazard information number after the classification would cause confusion with other numerical information even though paragraph (d) of § 172.201 in the Advance Notice stated that the number must be clearly separated from any other numbers. Accordingly, the Board has revised the proposal to require that the hazard information number be printed between the shipping name and classification prescribed for a material.

Several changes are proposed pertaining to the shipping paper certification requirements. The Board is proposing to authorize use of the certificates that has been used for a number of years by those persons subject to the IATA (International Air Transport Association) "Restricted Articles Regulations." Use of this certification would be limited to those materials offered or intended for transportation by air and, in such instances, could serve in place of the certificate required for surface movements. The Board understands the desirability of having a single form of certification that will be considered acceptable for all modes of transportation, both domestically and internationally. However, it does not contemplate resolution of the differences within the time frame of this rulemaking action.

A number of commenters pointed out that they have procedures whereby a computer prepares and executes an entire shipping document including the certification. The Board is proposing to permit certificates to be signed by mechanical means.

SUBPART D—MARKING

Proposed subpart D, pertaining to marking, was not proposed in the Advance Notice of Proposed Rule Making. It contains the basic marking requirements for packages, portable tanks, cargo tanks and tank cars. However, it does not contain all the marking requirements for packages and it will still be necessary for shippers to determine particular marking requirements that are required by Part 173.

It is proposed in § 172.305 to require all portable tanks to be marked in 2 inch letters on two sides with the shipping name of the material it contains. While marking on two sides is proposed, it should be noted that the size of lettering has been standardized and would no longer be relative to the tank diameter as is the present requirement in § 173.401 (a). The requirements for marking of cargo tanks are essentially the same as the requirements contained at present in § 177.823. The main difference is the proposal to require that each side and the rear of a cargo tank be so marked. Also included in the proposed new subpart is the proposal made in Docket HM–101 (37 FR 7104) to add a new § 173.31(a)(6) pertaining to the marking of tank cars.

SUBPART E—LABELING

Proposed subpart E would contain practically all the Department's regulations pertaining to the labeling of hazardous materials.

Section 172.400 contains the labeling exemptions while section 172.401 contains the labeling prohibitions. To clarify the intent of the labeling prohibition in present § 173.404(b), the Board is proposing a provision to authorize the label-

ing of a package containing a material (except explosives) that has been tentatively classified pending the outcome of the tests or the development of data to permit appropriate classification.

No date is provided in § 172.400(a)(2)(iii) to indicate the Board's further adoption of CGA Pamphlet C–7, Appendix A. This regulation authorizes use of special markings on compressed gas cylinders in place of labels for highway transportation only. The Board will await the proposals it anticipates will be submitted by the CGA, or others, before it decides on whether to continue recognition of the standard.

Section 172.402 sets forth the proposed regulations for labeling. They are essentially the same as those proposed in the Advance Notice of Proposed Rule Making with the exception of a requirement for multiple labeling of poisons. Several commenters suggested that a poison label be required for materials that are highly toxic when they are in another classification. The Board agrees and has proposed such a requirement in § 172.402.

Section 172.403 contains detailed requirements for labeling radioactive materials. In order to resolve the conflict created by the existence of a transport index block on the lower half of RADIOACTIVE-YELLOW labels with the proposed hazard information number block, the Board is proposing herein to modify the labels so as to require the application of the transport index on a "third line" as is presently required on the label of the regulations of the International Atomic Energy Agency. This allows for the use of the block for the application of the hazard information number. Another noteworthy change to the label format involves the removal of all of the text adjacent to the word "RADIOACTIVE" and the slight shifting of the vertical red bars so as to eliminate interference with the legibility of the label entries. None of these changes are expected to create any significant incompatibility of the United States label format with that of the International Atomic Energy Agency.

Section 172.405 clarifies the requirements for one or more labels on a package depending on its size.

Section 172.406 contains detailed requirements pertaining to the hazard information number on labels. In response to suggestions that the proposed requirements for a material requiring two labels on a package be clarified, the Board is proposing that the hazard information number for such a material be entered on each label.

§ 172.407 contains the detailed specifications for labels. These labels are substantially the same as those adopted under Docket No. HM–8 (38 FR 5292) with the addition of the hazard information number block. It is proposed that some of the names on the labels would be printed in white to improve visibility. Increasing the visibility of the hazardous materials labels is considered by the Board to be a significant improvement in hazard communication; however, in order to maintain a harmonious international labeling system, the Board will withdraw this portion of the proposal before final rule making if the United Nations Recommendations are not changed to accommodate the visibility improvements. Similar consideration is being given to the color of symbols. The Board recognizes that, if it adopts the label modifications it is proposing, sufficient time should be allowed to permit conversion.

It has been suggested that specific labels be provided for certain materials such as Oxygen and Chlorine. While the Board has been attempting to limit the number of different labels it would require, further comments concerning the need for additional labels are solicited.

SUBPART F—PLACARDING

This proposed subpart will contain the Department's placarding requirements pertaining to transportation of hazardous materials by water, rail, highway, and air.

Section 172.502 contains specific requirements for placarding highway and rail transport vehicles and, to simplify the procedure for determining the appropriate placard, the requirements are presented in three tables.

While disclosure of the presence of hazardous materials in any quantity is considered desirable, it appears that to require disclosure in any quantity in the highway area is totally impractical. For example, while not pointed out specifically in the comments received, it must be recognized that the DANGEROUS placard would have been required on thousands of vehicles operated by utility companies, construction companies, and others who carry small quantities of flammable liquids and compressed gases to perform their functions, particularly in the private carriage area. Also, considerable difficulty would be involved in placarding the thousands of vehicles used to transport small parcel shipments. The Board believes the benefit of such a requirement would be outweighed by the diminishing effect it would have on other placards that would convey information on the potential hazards of materials in significant quantities. Therefore, the 1,000 pound rule presently used in the placarding regulations for highway vehicles is being continued, except for Class A and B explosives, highly or extremely toxic gases, thermally unstable or self reactive materials, water reactive materials, certain organic peroxides, extremely toxic poisons, and certain radioactive materials.

Another part of the complexity problem relates to the specific identity of materials. It was proposed in the Advance Notice to identify the specific hazards of certain materials when 1,000 pounds or more were loaded at any one loading point. Again, this would cause difficulty in LTL operations due to the nature of placarding requirements proposed. Recognizing the kinds of materials that have been included in Table I of Subpart F, and the information content on hazard information card 01 which would be conveyed through the DANGEROUS placard, the specific placarding criteria has been raised to 5,000 pounds for the materials covered by Table I.

At the end of Table (3) in § 172.502, there is a footnote authorizing use of a flammable placard in place of combustible placard on tank motor vehicles. A similar provision was adopted in Docket HM–102. Further comments on the merits of continuing this provision are solicited for the Board's consideration.

A provision has been added to § 172.502 (b) to authorize use of Oxygen 22 placards on vehicles transporting liquefied oxygen that, as carried, does not meet the definition of § 173.300.

Section 172.503, pertaining to the giving and affixing of placards, has been modified to specify more clearly who is required to perform each function. As a matter of practicality, the Board visualizes that motor carriers who handle LTL shipments will find it necessary to have DANGEROUS 01 placards mounted on a permanent basis for require display when they load different shipments of hazardous materials covered by Table (1) totalling more than 1000 pounds gross weight.

Section 172.508 establishes requirements for placement of placards on highway and rail transport vehicles. Not included are the requirements previously proposed pertaining to the number of tacks and staples which must be used to attach placards. The Board is proposing in Paragraph (c) that the front placard must be attached to the front of a truck tractor in certain cases.

Section 172.511 contains proposed minimum strength and durability requirements for placards. Nothing in these proposed requirements prohibits the use of more durable placards or permanent placards made from metal, plastic, etc.

In Section 172.512 it is proposed that, if more than one placard is required for the same material, such as for hazard information numbers 26, 27, 28, and 29, the hazard information number for the material will be required on both placards.

Several comments were received on the merits of having all the placards of a standard shape and size. One commenter submitted a redesign of the placards for uniformity and increased visibility which the Board has made a part of this proposal. Section 172.513 contains the proposed EXPLOSIVES placards. One is of a diamond shape so that all highway transport vehicle placards will be of the same size and shape to permit uniformity in placard holders.

Section 172.520 and Appendices B and C to Subpart F contain the specifications for the diamond shaped placards. Additional specifications are provided for each placard when it differs from the general specifications.

SUBPART G—HAZARD INFORMATION NUMBERS

This proposed subpart contains detailed procedures for determining the source of the hazard information number for a material before it is offered for transportation. In most cases, the deri-

vation procedure is dependent upon quantitative definition criteria. Only partial definitions for flammable solids, oxidizing materials, and self reactive or thermally unstable materials are presently available. Quantitative criteria for these hazards are presently under development, and will be proposed in future rule making actions.

HAZARD INFORMATION NUMBERS FOR RADIOACTIVE MATERIALS

In the derivation of hazard information numbers for radioactive materials, as proposed herein, a number of different conceptual approaches were identified and are considered relevant to any approach. For example:

(1) Radioactive materials labels are now unique in that a transport index "block" is already present on the lower half of two of the three labels, obviously creating a conflict with the use of such block for a hazard information number.

(2) Placarding of transport vehicles carrying radioactive packages is presently based on the presence of only the RADIOACTIVE-YELLOW III category label, i.e., vehicles carrying RADIOACTIVE-WHITE I or YELLOW II labels are not required to be placarded; and

(3) In the proposed Hazard Information System, the purpose and intent of the vehicle placard takes on greatly expanded importance with respect to providing meaningful information in the event of a transport incident.

After careful consideration, the Board has concluded that placarding of a transport vehicle carrying all categories of labeled radioactive packages is not justified on a safety basis. Therefore, in the derivation of hazard information number assignments in § 172.101 for the "generic" proper shipping name entries of radioactive materials, a distinction between the hazard information numbers 70 and 71 is being proposed relative to placarding. No placard will be required for a transport vehicle carrying packages bearing hazard information number 70, and placards will be required if any quantity of packages are present bearing a hazard information number of 71. In determining which hazard information number to assign to a package, basically, the shipper would make this distinction on the basis of the quantity of radioactivity contained in the package, i.e., if a Type A quantity is present, hazard information number 70 will be assigned, and if more than a Type A quantity is present, hazard information number 71 will be assigned. One important exception to this rule-of-thumb would prevail, however, and a package bearing a RADIOACTIVE-YELLOW III label will require a hazard information number 71 regardless of the quantity of radioactivity thereby continuing the placarding requirements in the same manner as the present regulations for these packages.

Therefore, the content of the hazard information instructions have been developed on the basis that hazard information number 70 (no placards required) represents a hazard of relatively lower order than hazard information number 71.

It is pointed out that in deriving the hazard information numbers, the numbers 70 and 71 represent only those materials in which radioactivity is the only hazard, whereas, numbers 72, 73, 74, 78 and 79 are for those specific "non-n.o.s." materials which are listed by name in § 172.101 which possess other hazards such as corrosivity, pyrophoricity, flammability, etc., in addition to radioactivity.

It should be noted that those certain small quantities of radioactive materials and small radioactive devices which are exempt from specification packaging, marking, and labeling would not be required to have hazard information numbers assigned.

THE HAZARD INFORMATION CARDS

The proposed hazard information cards or pages, which will constitute the major portion of the Hazard Information Manual presently under development, are included with this Notice for review and comments. It should be noted that the text of each card has been shortened as was recommended by several commenters and several experts contacted by the Board's staff. Any person who desires to participate in final preparation of the entire manual should notify the Secretary, Hazardous Materials Regulations Board.

ENVIRONMENTAL CONSIDERATIONS

In response to comments from the Association of American Railroads (AAR) requesting the Board to issue an environmental impact statement, the Board issued a Request for Information on April 24, 1973 (38 FR 10117), asking the public to comment on the need for such a statement. A similar request was made for Docket HM-102 and a Request for Information was also issued. The Board determined that it would not issue an environmental impact statement for HM-102 because there would not be a significant impact on the environment, and the Board has determined that it will not issue an environmental impact statement with respect to this Notice because there will not be a significant impact upon the environment.

The AAR submitted comments to the two Requests for Information in a single document, and the Board has already discussed some of the points raised in its adoption of regulations under Docket HM-102. With respect to HM-103, the AAR said the greatest single impact upon the environment will be the "blossoming of placards" and that such an increase in the number of placards will cause a "dilution" in the effect of the hazardous materials warning system. The AAR argues that studies have shown that the "titillation factor" for each of a series of pornographic photographs decreases in direct proportion to the number of such photos shown, and, by analogy, that too many hazardous materials placards will mean less safety observance and not more.

The Board believes that the AAR has not shown that the adoption of the hazard information system will cause any significant impact on the environment. The argument that the adoption of the hazard information system will dilute the effect of the existing system is without basis and evidence. In addition, the Board is well aware, as must be the AAR, of the inadequate warning system that presently exists. The public docket for this amendment is replete with comments about the need to implement a new hazard warning system, and the inadequacy of the present system. To talk of "diluting" it appears premature at best.

In order to assist interested persons in their efforts to understand fully the proposals made in this Notice, the Board has scheduled a meeting which will be open to the public. The meeting will be for the purpose of answering questions and providing explanations of the proposals contained in this Notice. Statements relative to the merits of the proposals in this Notice may not be made at the meeting, but must be submitted in writing.

The meeting will be held on February 14, 1974, in the Departmental Auditorium located on Constitution Avenue between 12th and 14th Streets, NW, Washington, D.C. beginning at 10 a.m.

Interested persons are invited to give their views on these proposals. Communications should identify the docket number and be submitted in duplicate to the Secretary, Hazardous Materials Regulations Board, Department of Transportation, Washington, D.C. 20590. Communications received on or before May 28, 1974, will be considered before final action is taken on these proposals. All comments received will be available for examination by interested persons at the Office of the Secretary, Hazardous Materials Regulations Board, room 6215 Buzzards Point Building, Second and V Streets, SW, Washington, D.C., both before and after the closing date for comments.

Commenters are requested to make their comments in a manner that will clearly identify the particular matters on which they are commenting. Unless comments are general in nature pertaining to the entire Notice, it is requested that each paragraph of comments be identified in the following manner:

"*Subpart C—Shipping Papers*—We think * * *" or

"*Section 172.503*—We believe * * *"

Also, those commenters submitting more than two pages of comments are requested to submit six copies in order to facilitate their handling by the Board.

In consideration of the foregoing, the Hazardous Materials Regulations Board proposes to amend 49 CFR Part 172 as follows:

(A) Part 172 Table of Contents would be canceled; a new Part 172 Table of Contents would be added to read as follows:

PART 172—LIST OF HAZARDOUS MATERIALS AND HAZARDOUS MATERIALS COMMUNICATIONS REGULATIONS

Subpart A—General

Sec.
172.1 Applicability of this Part.
172.6 Meaning of words and terms.
(Subpart B—See Docket No. HM-112; Notice No. 73-9 in this issue.)

Subpart C—Shipping Papers

172.200 Applicability.
172.201 General.
172.202 Description of hazardous materials on shipping papers.
172.203 Additional description requirements.
172.204 Shipper's certification.

Subpart D—Marking

172.300 General requirements.
172.302 Packages.
172.305 Portable tanks.
172.308 Cargo tanks.
172.310 Tank cars.

Subpart E—Labeling

172.400 General requirements.
172.401 Prohibited labeling.
172.402 Required labeling.
172.403 Radioactive materials.
172.404 Labels for mixed packaging.
172.405 Placement of labels on a package.
172.406 Hazard information number required on labels.
172.407 Label specifications.
172.411 EXPLOSIVE A, EXPLOSIVE B, and EXPLOSIVE C labels.
172.416 NON-FLAMMABLE GAS label.
172.417 FLAMMABLE GAS label.
172.419 FLAMMABLE LIQUID label.
172.420 FLAMMABLE SOLID label.
172.422 SPONTANEOUSLY COMBUSTIBLE label.
172.423 DANGEROUS WHEN WET label.
172.426 OXIDIZER label.
172.427 ORGANIC PEROXIDE label.
172.430 POISON label.
172.431 IRRITANT label.
172.437 RADIOACTIVE WHITE—I label.
172.438 RADIOACTIVE YELLOW—II label.
172.439 RADIOACTIVE YELLOW—III label.
172.442 CORROSIVE label.
172.457 MAGNETIZED MATERIAL label.
172.459 BUNG label.
172.460 ETIOLOGIC AGENT label.
172.462 CARGO AIRCRAFT ONLY label.

Subpart F—Placarding

172.500 General requirements.
172.501 Prohibited placarding.
172.502 Placarding tables.
172.503 Giving and affixing placards—transport vehicles.
172.504 Transport containers.
172.505 Cargo tanks and portable tanks.
172.506 Empty tank cars.
172.508 Placing, attaching, and maintenance of placards.
172.509 Permitted placard modifications.
172.511 Placard specifications.
172.512 Hazard information number.
172.513 Standard requirements for EXPLOSIVES placards.
172.520 General specifications for diamond placards.
172.522 DANGEROUS placard.
172.527 Standard requirements for diamond EMPTY placards.
172.528 NON-FLAMMABLE GAS placard.
172.530 OXYGEN placard.
172.531 FLAMMABLE GAS placard.
172.533 FLAMMABLE and FLAMMABLE w placards.
172.535 COMBUSTIBLE placard.
172.538 OXIDIZER placard.
172.540 ORGANIC PEROXIDE placard.
172.544 POISON placard.
172.547 RADIOACTIVE placard.
172.550 CORROSIVE placard.

Appendices to Subpart F

Appendix A—Dimensional Specifications for Recommended Placard Holder.
Appendix B—Dimensional Specifications for Placards.
Appendix C—Dimensional Specifications for the Diamond Placard.

Subpart G—Hazard Information Numbers

172.600 Hazard information number required.
172.602 Derivation of the hazard information number.

Appendices to Subpart G

Index to Appendices to Subpart G.
Appendix A—Definitions.
Appendix B—Definitions.

Appendix to Part 172

Appendix A—Specifications for Colors.

(B) Part 172 would be canceled; a new Part 172 (with the exception of Subpart B) would be added to read as follows:

PART 172—LIST OF HAZARDOUS MATERIALS AND HAZARDOUS MATERIALS COMMUNICATIONS REGULATIONS

Subpart A—General

§ 172.1 Applicability of this Part.

(a) This Part applies to—

(1) Each shipper of hazardous materials, and

(2) Each carrier by air, highway, rail, and water when it transports hazardous materials.

§ 172.6 Meaning of words and terms.

(a) For the purposes of this Part—

(1) "Person who offers for transportation" includes a person who transports material as a private carrier.

(2) "Portable tank" also includes a multi-unit tank car tank.

(3) "Transport container" means a reusable container having a volume of 64 cubic feet or more intended primarily for containment of packages in unit form during transportation.

Subpart C—Shipping Papers

§ 172.200 Applicability.

(a) Each person who offers a hazardous material for transportation shall describe the material on a shipping paper in the manner prescribed in this subpart.

(b) This subpart does not apply to any Other Regulated Material described as—

(1) ORM-A, B, or C, unless it is offered or intended for transportation by air when it is subject to the regulations pertaining to transportation by air as specified in § 172.101; or

(2) ORM-A, B, or C, unless it is offered or intended for transportation by water when it is subject to the regulations pertaining to transportation by water as specified in § 172.101; or

(3) ORM-D unless it is offered or intended for transportation by air.

§ 172.201 General.

(a) When a hazardous material and a material not classed as a hazardous material are described on the same shipping paper, the hazardous material must be described first.

(NOTE: This requirement is not mandatory until one year after the mandatory effective date of the amendment.)

(b) A shipping paper may contain additional shipping information if it is placed after the required description for a hazardous material. However, the additional information may not be inconsistent with the required description.

(c) The required shipping description must be legible and printed in English.

(d) Unless it is specifically authorized or required in this subpart, the required shipping description may not contain any code or abbreviation.

§ 172.202 Description of hazardous materials on shipping papers.

(a) Each description of a hazardous material on the shipping paper must include—

(1) The shipping name prescribed for the material, as specified in column (1) of § 172.101;

(2) The hazard information number prescribed for the material, as specified in column (2) of § 172.101, or designated, or derived in accordance with § 172.602;

(3) The classification prescribed for the material as specified in column (2) of § 172.101, except when the words of the shipping name are identical (excluding the entity "n.o.s.") with the words of the classification.

(i) The letter size in the classification may be no smaller than that used in the shipping name.

(4) The total quantity (by weight, volume, or as otherwise appropriate) of the hazardous material covered by the description.

(b) The description specified in paragraphs (a) (1), (2), and (3) of this section must be shown in sequence. For example: "Gasoline, 30 Flammable liquid," or "Flammable Solid, 40 n.o.s."

(c) The total quantity of material covered by one description must appear immediately before or after, or both before and after, the description required by paragraph (a) of this section. Abbreviations may be used to specify the type of container and weight or volume. For example: 40 Cyl. Nitrogen, 20 Nonflammable Gas—800 lbs.

§ 172.203 Additional description requirements.

(a) *Special permits.* A shipping paper issued in connection with a shipment made under a special permit must have on it the words "DOT Special Permit No. —" and the number assigned. The words must appear after the entries required by § 172.202.

(b) *ORM-D materials.* For shipments by air, the original classification of an ORM-D material must be shown with the shipping name except when the words are identical with the words of the shipping name (excluding the entry "n.o.s."). For example: "Calcium hypochlorite mixtures—Oxidizing Material, ORM-D," or "Flammable Liquid, n.o.s.—ORM-D."

(c) *Shipment by cargo aircraft.* Each person who offers for transportation by air a package containing a hazardous material shall mark the shipping paper "CARGO AIRCRAFT ONLY" if this subchapter prohibits its transportation by passenger-carrying aircraft.

(d) *Shipment by rail.* Each person who offers a rail car containing a hazardous material, including an empty tank car, which must be placarded in accordance with § 172.506 shall state on the shipping paper the name of the placard required for the car followed by the words "Placard applied".

(e) *Export shipment by water.* Each person who offers for export shipment by water a hazardous material that is described as a "n.o.s." entry in the List of Hazardous Materials in § 172.101 shall add in parenthesis on the shipping paper the technical name of the material immediately following the classification, e.g., corrosive liquid, n.o.s. (caprylyl chloride).

(f) *Etiologic agent.* The following words must be placed on the shipping paper for each shipment containing any etiologic agent subject to Parts 170–189 of this subchapter: "If damaged, immediately call: (404) 633–5313, Communicable Disease Center, Atlanta, Georgia."

(g) *Blasting caps.* For a shipment containing blasting caps, either immediately before or after the description required by § 172.202, the shipping paper must show the number of caps in the shipment.

(h) *Anhydrous ammonia.* Each person offering anhydrous ammonia for transportation in a specification MC 330 or MC 331 cargo tank made of quenched and tempered steel, shall state "(0.2 percent water)" or "(99.995 percent pure)," as appropriate, on the shipping paper to indicate the suitability of the material for shipment in a tank authorized by § 173.315(a)(1) Table, Note 14 of this subchapter.

(i) *Liquefied petroleum gas.* Each person offering "noncorrosive" liquefied petroleum gas for transportation in a specification MC 330 or MC 331 cargo tank made of quenched and tempered steel shall state "Noncorrosive" or "Non-cor" on the shipping paper for each shipment to indicate the suitability of the material for shipment in a tank authorized by § 173.315(a)(1) Table, Note 15 of this subchapter.

(j) *Empty packaging.* The shipping paper for an empty packaging that contains the residue of a hazardous material may contain the word "Empty," immediately following the description required by this subpart.

(k) *Radioactive materials.* Each person offering a radioactive material for transportation shall include the following information in addition to the description required by § 172.201:

(1) The name of each radionuclide in the radioactive material, typically, that is listed in § 173.390 of this subchapter. Abbreviations, e.g., Mo–99, are authorized.

(2) A description of the physical and chemncal form of the material, if the material is not in special form.

(3) The activity contained in each package of the shipment in terms of curies, millicuries, or microcuries. Abbreviations are authorized.

(4) The category of label applied to each package in the shipment, i.e., "RADIOACTIVE WHITE—I," or the words "No Label Required," if applicable.

(5) The transport index assigned to each package in the shipment, i.e., RADIOACTIVE YELLOW—II or RADIOACTIVE YELLOW—III packages only.

(6) For a shipment of fissile radioactive material:

(i) The words "Fissile Exempt," if the package is exempt pursuant to § 173.396 (a) of this subchapter; or

(ii) If not exempt, the fissile class of each package in the shipment, pursuant to § 173.389(a) of this subchapter; and

(iii) For a Fissile Class III shipment, the additional notation: "Warning—Fissile Class III Shipment. Do not Load More Than * * * Packages per Vehicle." (Asterisks to be replaced by appropriate number.) "In Loading and Storage Areas, Keep at Least 20 Feet (6 Meters) From Other Packages Bearing Radioactive Labels."

(iv) If a Fissile Class III shipment is to be transported by water, the supplementary notation must also include the following statement: "For shipment by water, only one Fissile Class III shipment is permitted in a hold."

(7) For a package approved by the U.S. Atomic Energy Commission (USAEC), a notation of the package identification marking as prescribed in the applicable USAEC approval. (See § 173.393a of this subchapter.)

(8) For an export shipment or a shipment in a foreign-made package, a notation of the package identification marking as prescribed in the applicable International Atomic Energy Agency (IAEA) Certificate of Competent Authority which has been issued for the package. (See § 173.393b(a)(3) of this subchapter.)

§ 172.204 Shipper's certification.

(a) Each shipper who offers a hazardous material for transportation shall certify in writing on the shipping paper containing the required shipping description that the material has been presented for transportation in accordance with this subchapter. For transportation by highway only, the certification is not required for a shipment—

(1) In a cargo tank supplied by the carrier, or

(2) Transported only by a private carrier.

(b) The certification required by paragraph (a) of this section is as follows:

"This is to certify that the above-named materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation."

(NOTE: Preprinted certificates containing the word "articles" in place of "materials" may be used until one year after the mandatory effective date of the amendment.)

In addition:

(1) Each person who offers a permitted hazardous material for transportation aboard a passenger-carrying aircraft also shall make the following certification:

"This shipment is within the limitations prescribed for passenger-carrying aircraft."

(2) The words "* * * and to the IATA Restricted Articles Regulations" may be added to the certification when appropriate.

(c) As an alternative, the following certification may be used in place of the certificate required by paragraph (b) of this section when hazardous materials are offered or intended for transportation by air:

"This is to certify that the contents of this consignment are properly described by name and are packed, marked and labeled and are in proper condition for carriage by air according to the IATA Restricted Articles Regulations and all applicable carrier and governmental regulations. This consignment is within the limitations prescribed for passenger aircraft/cargo aircraft only (cross out nonapplicable)."

(d) The shipper who offers the hazardous material for transportation shall sign the certificate required by this section. The certificate—

(1) Shall be signed by a principal, officer, partner, or employee of the shipper or his agent; and

(2) May be signed manually, by typewriter, or by other mechanical means.

Subpart D—Marking

§ 172.300 General requirements.

A person who offers a package, portable tank, cargo tank, or tank car containing hazardous materials for transportation shall mark it as prescribed in this subchapter unless he has determined it has been previously marked as required.

§ 172.302 Packages.

(a) Except as provided in paragraph (b) of this section and in § 170.10 of this subchapter, each outside packaging containing a hazardous material must be plainly and durably marked as follows:

(1) With the proper shipping name as prescribed in § 172.101 except that an "Other Regulated Material, Group A, n.o.s." and "Other Regulated Material, Group B, n.o.s." may be identified "ORM–A, n.o.s." or "ORM–B, n.o.s." as appropriate.

(2) With the classification "ORM–A," "ORM–B," or "ORM–C" as appropriate; except that "ORM–A" or "ORM–B" need not be repeated if it is part of the marked shipping name, and

(3) "Corrosive when wet" if the package contains a solid material classed as "ORM–B."

(b) A package containing material classed as ORM–D must be marked with:

(1) The shipping name of the material specified in § 172.101;

(2) The original classification of the material, if different from the entry in § 172.101 (excluding the entry n.o.s.), and

(3) ORM–D. (For example: Calcium hypochlorite mixtures; Oxidizing Material, ORM–D.)

(c) Except as follows, abbreviations may not be used:

(1) For marking descriptions on ammunition, such as ammunition for cannon without projectiles, etc., the words "with" or "without" may be abbreviated as "W" or "W/O" for example: "Am-

munition for cannon W/O projectiles."

(2) The letters "ORM" may be used in place of the words "Other Regulated Materials."

(d) The marking must be in English and printed or affixed to the surface of the package, must be displayed on a background of sharply contrasting color, and must not be near any marking (such as advertising) that could substantially reduce its effectiveness.

(e) Each package containing a hazardous material must be marked with the name and address of the consignee except when a part of a carload lot, truckload lot, or when it is transported by highway and it will not be transferred from one motor carrier to another.

(f) Except for materials classed as ORM-D, each package containing a hazardous material offered for export by water and described by a "n.o.s." entry in § 172.101 must have the technical name of the material added in parentheses immediately following the shipping name.

(g) Each outside packaging containing a combustible liquid, when offered for shipment by aircraft and passenger vessel, must be plainly and durably marked—

(1) With the proper shipping name as prescribed in § 172.101 and

(2) With the classification "Combustible liquid" unless combustible liquid, n.o.s. is the shipping name of the material.

(h) A package having an inside packaging containing liquid hazardous materials must be—

(1) Packed with openings upward, and

(2) Legibly marked "THIS SIDE UP" or "THIS END UP" as appropriate, to indicate the position of the inside packaging.

§ 172.305 Portable tanks.

(a) Each portable tank containing a hazardous material must be marked on two sides with the name specified for the material in § 172.101 in letters no less than 2 inches high.

(b) The markings must be clearly displayed on a background of sharply contrasting color.

(c) Each portable tank used to transport a hazardous material must be marked with the name of its owner or lessee when appropriate.

(d) Other markings on a portable tank containing a hazardous material may not be of such a size, color, or arrangement that will make the markings required by this section inconspicuous.

(e) For export shipments by water, a portable tank containing a hazardous material described by a "n.o.s." entry in the List of Hazardous Materials in § 172.101 must be marked also with the technical name of the material.

(f) A portable tank marked with the name of a specific hazardous material may not be used to transport any other material unless the marking is removed or changed to identify the material it contains.

§ 172.308 Cargo tanks.

(a) *Gases.* Unless otherwise specified in this subchapter, each cargo tank used to transport a flammable or non-flammable gas subject to the requirements of this subchapter must be marked with the name specified for the material in § 172.101 or an appropriate common name for the material such as "Refrigerant Gas."

(b) The letters of the marking must be at least 2 inches high.

(c) The markings must be applied to each side and the rear of the cargo tank, must be displayed on a background of sharply contrasting color, and must be readily visible when viewed from each side and the rear of the cargo tank.

(d) A cargo tank marked with the name of a specific hazardous material may not be used to transport any other material unless the marking is removed or changed to identify the material it contains.

(e) When used to transport a material other than a compressed gas, and Part 173 of this subchapter requires a cargo tank transporting that material to be marked with the name of the material as specified in § 172.101, the cargo tank must be marked in the same manner as prescribed for gases in this section.

(f) Each specification MC 330 and MC 331 cargo tank must be appropriately marked "QT" or "NQT" to indicate it is constructed of quenched and tempered steel (QT) or of other than quenched and tempered steel (NQT). These markings must be at least 2 inches high and must be placed near the specification identification plate.

§ 172.310 Tank cars.

(a) When required by Part 173 of this subchapter, each tank car used to transport a hazardous material must be marked with the name of the material.

(b) The letters in required markings must be at least 6 inches high with at least a ¾-inch stroke. The separation between each letter must be at least 1 inch.

(c) The markings must be—

(1) Applied to each side of the tank car;

(2) Displayed on a background of sharply contrasting color; and

(3) Readily visible when viewed from each side of the tank car.

(d) A tank car marked with the name of a specific hazardous material may not be used to transport any other material unless the marking is removed or is changed to identify the material it contains.

Subpart E—Labeling

§ 172.400 General requirements.

(a) Each person who offers for transportation a package containing a hazardous material shall conspicuously label it in compliance with this Part. However, a label is not required on any—

(1) Package exempt from labeling under the conditions set forth in Part 173 of this subchapter;

(2) Cylinder containing a nonpoisonous compressed gas classed as flammable or nonflammable that is—

(i) Carried by a private or contract motor carrier—

(ii) Is not overpacked; and

(iii) Is durably and legibly marked in accordance with CGA Pamphlet C–7, Appendix A, dated (date to be provided later following publication of a supplemental Notice of Proposed Rule Making), entitled "A Guide for the Preparation of Precautionary Markings for Compressed Gas Containers.";

(3) Military ammunition shipped by, for, or to the U.S. Department of Defense when in carload or truckload shipments, if loaded and unloaded by the shipper, or that Department.

(4) Package containing a material other than ammunition that is—

(i) Loaded and unloaded under the supervision of Department of Defense personnel, and

(ii) Escorted by Department of Defense personnel in a separate vehicle.

(5) Compressed gas cylinder permanently mounted in or on a transport vehicle;

(6) Portable tank having a capacity of 1,000 gallons or more;

(7) Transport container having a capacity of 640 cubic feet or more;

(8) Package containing a material classed as ORM–A, B, C, or D if it contains no other material classed as a hazardous material;

(9) Package containing combustible liquids; or

(10) Package of low specific activity radioactive material, when being transported in a transport vehicle assigned for the sole use of the consignor pursuant to § 173.392(b) of this subchapter.

§ 172.401 Prohibited labeling.

(a) A person may not offer for transportation; and a carrier may not transport any package bearing a label specified in this subpart when the material in the package is not subject to the regulations in Parts 170–189 of this subchapter.

(b) A person may not ship or offer for transportation, and a carrier may not transport, a package bearing any marking or labeling that, by its color, design, shape, or information content, could be readily confused or conflict with a label prescribed in this Part.

(c) Paragraph (a) of this section does not apply to any label applied to a package—

(1) In conformance with any United Nations Recommendation (including the entry of the class number below the hazard information number block) in the document entitled, "Transport of Dangerous Goods (1970)";

(2) In conformance with the Inter-Governmental Maritime Consultative Organization (IMCO) requirements (including the entry of the class number below the hazard information number block) in document entitled "International Maritime Dangerous Goods Code"; or

(3) Except for explosives, by a person who has tentatively assigned the classification the label represents pending the outcome of tests or development of data to accomplish the appropriate classification of a material.

(d) Paragraph (b) of this section does not apply to any label applied to a package in conformance with—

(1) Any United Nations Recommendation (including the entry of the class number below the hazard information number block) in the document entitled "Transport of Dangerous Goods (1970)"; or

(2) The Inter-Governmental Maritime Consultative Organization (IMCO) requirements (including the entry of the class number below the hazard information number block) in document entitled "International Maritime Dangerous Goods Code."

§ 172.402 Required labeling.

(a) Each package containing a material having more than one hazard as defined in this Part, one of which is a Class A Explosive, must be labeled for each hazard.

(b) Unless exempted or otherwise specified in this subchapter, a package containing a hazardous material must bear the label that is—

(1) Specified in column 3 for the material listed in column 1 of the List of Hazardous Materials in § 172.101; or

(2) Specified in the following table for each hazard information number that is assigned in accordance with § 172.602.

LABELING TABLE

Hazard Information No.	Label(s) Required
05	IRRITANT
15	EXPLOSIVE C
17	EXPLOSIVE B
19	EXPLOSIVE A
20	NONFLAMMABLE GAS
21	NONFLAMMABLE GAS
22	OXIDIZER
23	FLAMMABLE GAS
24	FLAMMABLE GAS
26	POISON and NON-FLAMMABLE GAS
27	POISON and OXIDIZER
28	POISON and FLAMMABLE GAS
29	(1)
30	FLAMMABLE LIQUID [2]
31	FLAMMABLE LIQUID
32	FLAMMABLE LIQUID and POISON
34	FLAMMABLE LIQUID
35	FLAMMABLE LIQUID
36	FLAMMABLE LIQUID and POISON
38	FLAMMABLE LIQUID
40	FLAMMABLE SOLID
41	FLAMMABLE SOLID and POISON
42	FLAMMABLE SOLID
43	FLAMMABLE SOLID and POISON
44	FLAMMABLE SOLID, and DANGEROUS WHEN WET
45	FLAMMABLE SOLID, POISON and DANGEROUS WHEN WET
46	FLAMMABLE SOLID, AND DANGEROUS WHEN WET
47	FLAMMABLE SOLID, POISON and DANGEROUS WHEN WET
48	FLAMMABLE SOLID
50	OXIDIZER
51	OXIDIZER
53	OXIDIZER and POISON [3]
54	OXIDIZER
55	OXIDIZER
56	OXIDIZER and POISON
57	ORGANIC PEROXIDE
58	ORGANIC PEROXIDE
59	ORGANIC PEROXIDE
60	POISON
61	POISON
62	POISON
64	POISON
65	POISON and FLAMMABLE [2]
67	POISON and FLAMMABLE [2]
70	RADIOACTIVE [4]
71	RADIOACTIVE [4]
72	RADIOACTIVE [4]
73	RADIOACTIVE [4]
74	RADIOACTIVE [4]
78	RADIOACTIVE [4]
79	RADIOACTIVE [4]
80	CORROSIVE
81	CORROSIVE
82	CORROSIVE
83	CORROSIVE
84	CORROSIVE
85	CORROSIVE

[1] Will be designated by the Department if not specified in § 172.101.

[2] Does not include a liquid defined as combustible.

[3] If material also is corrosive, affix OXIDIZER and CORROSIVE labels.

[4] See § 172.403.

§ 172.403 Radioactive materials.

(a) Unless exempted by § 173.391 or § 173.392 of this subchapter, each package of radioactive materials must be labeled as provided in this section. The label to be used is to be determined by the transport index or other considerations as follows:

(1) *RADIOACTIVE WHITE—I label.* For each package not exceeding 0.5 millirem per hour at each point on the external surface of the package, and which—

(i) Is not a Fissile Class II package; and

(ii) Does not come within the coverage of subparagraph (2) or (3) of this paragraph.

(2) *RADIOACTIVE YELOW—II label.* For each package when the limits in subparagraph (1) of this paragraph are exceeded, but the provisions of subparagraph (3) of this paragraph are not met, and when—

(i) The package does not exceed 50 millirems per hour at each point on the external surface of the package and does not exceed 1.0 millirem per hour at 3 feet from each point on the external surface of the package; or

(ii) The package has a transport index that does not exceed 1.0 at any time during transportation.

(3) *RADIOACTIVE YELLOW—III label.* For—

(i) Each package when either of the limits in subparagraph (2) of this paragraph is exceeded;

(ii) Each Fissile Class III package; and

(iii) Each package containing a large quantity of radioactive materials as defined in § 173.389 of this subchapter.

§ 172.404 Labels for mixed packaging.

Whenever materials having different hazard information numbers are packaged in separate packagings within the same outside package, as authorized under Part 173 of this subchapter, the package must be labeled for each material that it contains.

§ 172.405 Placement of labels on a package.

(a) The label must be printed on or be affixed to the surface of a package near the marked name of contents as required by subpart D of this part. For a compressed gas cylinder or a package that contains other than radioactive materials and has dimensions less than those of the required label, the label may be printed on or be affixed to a tag attached securely to the package or cylinder.

(1) If two or more different labels are required, they must be displayed next to each other.

(b) Except when containing an outer border, consisting of a dotted line, each label on a package must be on a background of contrasting color.

(c) Labels must be displayed on at least two sides or ends (excluding bottoms) of each—

(1) Package having a volume of 64 cubic feet or more;

(2) Portable tank having a capacity of more than 110 but less than 1,000 gallons; and

(3) Transport container having a volume of at least 64 but not more than 640 cubic feet. One of the required labels must be displayed on or near the closure.

(i) Labels are not required on a transport container intended for transportation by air when placarded in accordance with § 172.504(a).

§ 172.406 Hazard information number required on labels.

(a) The hazard information number specified for the material in a package must be entered in the block identified "Hazard Information No." on each label containing such a block. If more than one label is required for the same material, the hazard information number for the material must be entered on each label.

(b) The hazard information number must be—

(1) Black;

(2) Moisture resistant; and

(3) At least one-half of an inch high and of Franklin Gothic style type, unless otherwise specifically provided.

§ 172.407 Label specifications.

(a) Each label must be durable and weather resistant whether affixed to or preprinted on a package.

(b) Each diamond label prescribed in this subpart must as a minimum be 4 inches (101 mm.) on each side with a black solid line border ¼-inch from the edge on each side.

(c) The printing, border, and symbol in each label must be as shown and must be increased in size proportionately if the label is made larger than the minimum 4 inches (101 mm.) specified.

(d) Each diamond label, except a SPONTANEOUSLY COMBUSTIBLE, DANGEROUS WHEN WET, MAGNETIZED MATERIALS or CARGO AIRCRAFT ONLY label, must have, below the label name, a white block measuring approximately 1 3/16 inches (30 mm.) by 11/16-inch (17.5 mm.) high for the hazard information number. The words "Hazard Information No." in no larger than 6-point type must be entered in black inside the hazard information number block along the lower border; however, these words may be omitted if the hazard information number is preprinted on the label.

(e) The specified label color must extend to the edge of the label in the area designated on each label except a CORROSIVE, MAGNETIZED MATERIAL, RADIOACTIVE YELLOW—II, and RADIOACTIVE YELLOW—III label.

(f) A label may contain form identification information, including the name of its maker, if that information is printed outside of the solid line border in no larger than 10-point type.

(g) A label may contain the United Nations and Inter-Governmental Maritime Consultative Organization (IMCO) hazard class number. The number should be black, except it should be white on the corrosive label, must be located in the lower corner below the hazard information number block (if the label contains the block), and must be approximately 0.25-inch (6.3 mm.) high.

(h) The colors for each label must be as specified in this subpart and the specifications for each color must be as prescribed in Appendix A to this Part.

§ 172.411 EXPLOSIVE A, EXPLOSIVE B, and EXPLOSIVE C labels.

(a) Except for size and color, the EXPLOSIVE A, EXPLOSIVE B, and EXPLOSIVE C labels must be as follows:

(b) In addition to complying with §§ 172.406 and 172.407, the EXPLOSIVE A, EXPLOSIVE B, and EXPLOSIVE C labels must be orange. The printing and symbol must be black.

§ 172.416 NON-FLAMMABLE GAS label.

(a) Except for size and color, the NON-FLAMMABLE GAS label must be as follows:

(b) In addition to the requirements specified in §§ 172.406 and 172.407, the NON-FLAMMABLE GAS label must be green, except for the words NON-FLAMMABLE GAS which must be white, the printing and symbol must be black.

§ 172.417 FLAMMABLE GAS label.

(a) Except for size and color, the FLAMMABLE GAS label, must be as follows:

(b) In addition to complying with §§ 172.406 and 172.407, the FLAMMABLE GAS label must be red. The printing and symbol must be black, except for the words "FLAMMABLE GAS", which must be white.

§ 172.419 FLAMMABLE LIQUID label.

(a) Except for size and color, the FLAMMABLE LIQUID label, must be as follows:

(b) In addition to complying with §§ 172.406 and 172.407, the FLAMMABLE LIQUID label must be red. The printing and symbol must be black, except for the words "FLAMMABLE LIQUID", which must be white.

§ 172.420 FLAMMABLE SOLID label.

(a) Except for size and color, the FLAMMABLE SOLID label must be as follows:

(b) In addition to complying with §§ 172.406 and 172.407, the FLAMMABLE SOLID label must be white with vertical red stripes, except for the rectangle for the words "FLAMMABLE SOLID", which must be white. The printing and symbol must be black with the symbol overprinted. The words "FLAMMABLE SOLID" must not contact any red stripe. The white stripes must be enough wider than the red stripes to make them appear visually equal.

§ 172.422 SPONTANEOUSLY COMBUSTIBLE label.

(a) Except for size and color, the SPONTANEOUSLY COMBUSTIBLE label, must be as follows:

(b) In addition to complying with §§ 172.406 and 172.407, the SPONTANEOUSLY COMBUSTIBLE label must be red in the lower half and white in the upper half. The symbol must be black. The words "SPONTANEOUSLY COMBUSTIBLE" must be white.

(c) If use of the SPONTANEOUSLY COMBUSTIBLE label is required by the regulations of another country, it may be used in addition to the label required by § 172.402.

§ 172.423 DANGEROUS WHEN WET label.

(a) Except for size and color, the DANGEROUS WHEN WET label must be as follows:

(b) In addition to complying with §§ 172.406 and 172.407, the DANGEROUS WHEN WET label must be predominantly blue with white printing. The symbol must be black. The w in the lower half must be white.

(c) If use of the DANGEROUS WHEN WET label is required by the regulations of another country, it may be used in addition to the label required by § 172.402.

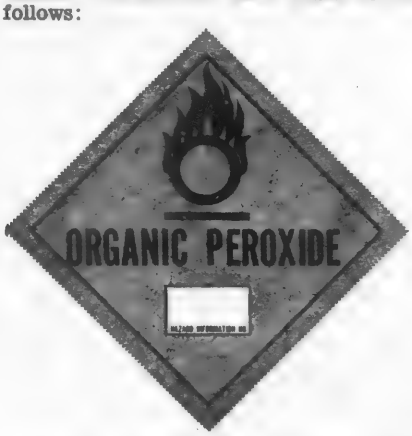
§ 172.426 OXIDIZER label.

(a) Except for size and color, the OXIDIZER label must be as follows:

(b) In addition to complying with §§ 172.406 and 172.407, the OXIDIZER label must be yellow. The printing and symbol must be black.

§ 172.427 ORGANIC PEROXIDE label.

(a) Except for size and color, the ORGANIC PEROXIDE label must be as follows:



(b) In addition to complying with §§ 172.406 and 172.407, the ORGANIC

PEROXIDE label must be yellow. The printing and symbol must be black.

§ 172.430 POISON label.

(a) Except for size and color, the POISON label must be as follows:

(b) In addition to complying with §§ 172.406 and 172.407, the POISON label must be white. The printing must be black, except for the word "POISON" which must be red. The symbol must be black and white.

§ 172.431 IRRITANT label.

(a) Except for size and color, the IRRITANT label must be as follows:

(b) In addition to complying with §§ 172.406 and 172.407, the IRRITANT label must be white. The printing and symbol must be black. The word "IRRITANT" must be red.

(c) For import or export shipments, if use of the following label is required by the regulations of another country, it may be used in addition to the label required by § 172.402 for irritants. In addition to complying with §§ 172.406 and 172.407, this additional label for irritants, except for size and color, must be as follows:

(d) The word "POISON" must be red, and the printing and symbol black. The hazard information number "05" must be entered in the hazard information number block.

§ 172.437 RADIOACTIVE WHITE—I label.

(a) Except for size and color, the RADIOACTIVE WHITE—I label, must be as follows:

(b) In addition to complying with §§ 172.406 and 172.407, the RADIOACTIVE WHITE—I label must be white. The printing and symbol must be black except for the "I" which must be red.

§ 172.438 RADIOACTIVE YELLOW—II label.

(a) Except for size and color, the RADIOACTIVE YELLOW—II label, must be as follows:

(b) In addition to complying with §§ 172.406 and 172.407, the RADIOACTIVE YELLOW—II label must be yellow in the top half and white in the lower half. The printing and symbol must be black, except for the "II" which must be red.

§ 172.439 RADIOACTIVE YELLOW—III label.

(a) Except for size and color, the RADIOACTIVE YELLOW—III label must be as follows:

(b) In addition to complying with §§ 172.406 and 172.407, the RADIOACTIVE YELLOW—III label must be yellow in the top half and white in the lower half. The printing and symbol must be black, except for the "III" which must be red.

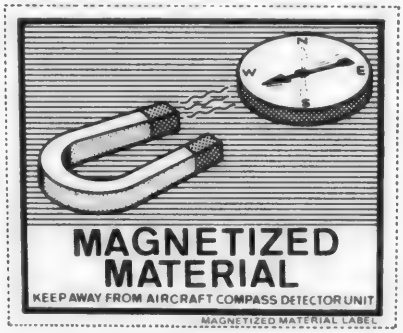
§ 172.442 CORROSIVE label.

(a) Except for size and color, the CORROSIVE label must be as follows:

(b) In addition to complying with §§ 172.406 and 172.407, the CORROSIVE label must be white in the top half and black in the lower half. The printing must be white and the symbol must be black and white.

§ 172.457 MAGNETIZED MATERIAL label.

(a) Except for size and color, the MAGNETIZED MATERIAL label including the label name in the lower border must be as follows:



MAGNETIZED MATERIAL LABEL

(b) The MAGNETIZED MATERIAL label must be a rectangle measuring 3 9/16 inches (90 mm.) high and 4 5/16 inches (110 mm.) wide. The printing must be blue and the symbol must be white and blue.

§ 172.459 BUNG label.

Each metal barrel or drum containing a flammable liquid having a vapor pressure exceeding 16 p.s.i.a. at 100° F. must have a BUNG label as specified in § 173.119(h)(1)(i) of this subchapter.

§ 172.460 ETIOLOGIC AGENT label.

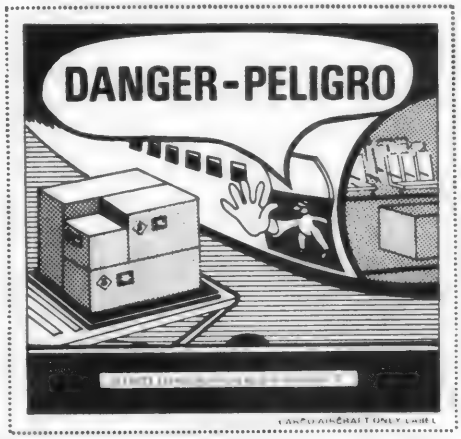
(a) Each package containing an etiologic agent subject to Parts 170–189 must be labeled as specified in § 173.388 of this subchapter.

(b) For import or export shipments, if use of the following label is required by the regulations or another country, it may be used in addition to the label required in paragraph (a) of this section for etiologic agents. In addition to complying with §§ 172.406 and 172.407, this additional label for etiologic agents, except for size and color must be as follows:

(c) The word "POISON" must be red, and the printing and symbol black. An "X" must be entered in the hazard information number block.

§172.462 CARGO AIRCRAFT ONLY label.

(a) Except for size and color, the CARGO AIRCRAFT ONLY (DANGER-PELIGRO) label including the label name in the lower border must be as follows:



CARGO AIRCRAFT ONLY LABEL

(b) The CARGO AIRCRAFT ONLY label must be a rectangle measuring 4 11/32 inches (110 mm.) high by 4¾ inches (120 mm.) wide. The printing must be black and the symbol must be black and orange.

Subpart F—Placarding

§ 172.500 General requirements.

(a) Each person who offers for transportation, and each carrier who transports, any hazardous material subject to this subchapter shall comply with the applicable requirements of this subpart for placarding transport vehicles, portable tanks, and transport containers.

(b) This subpart does not apply to a material classed as Etiologic Agents or ORM–A, B, C, or D.

§ 172.501 Prohibited placarding.

(a) A person may not place or keep a placard on a transport vehicle, portable tank, or transport container if that placard—

(1) Is specified in this subpart and is not authorized or required for the material that the tank or container contains; or

(2) Is not authorized or required by this subpart for the material that the tank or container contains and that by its color, design, shape, or information content, could be readily confused or conflict with any placard prescribed in this subpart.

§ 172.502 Placarding tables.

(a) Except as otherwise provided in this subchapter, each highway or rail transport vehicle containing any quantity of a hazardous material must be placarded in accordance with the following:

TABLE (1)

A	B
If in accordance with § 172.101 or § 172.602, a material is assigned the hazard information number.	The highway or rail transport vehicle must be placarded on each side and each end.
05	DANGEROUS 01
15	FLAMMABLE
20	NONFLAMMABLE GAS
21	NONFLAMMABLE GAS
22	OXYGEN
23	FLAMMABLE GAS
24	FLAMMABLE GAS
30	FLAMMABLE [1]
31	FLAMMABLE
32	FLAMMABLE
38	FLAMMABLE
40	FLAMMABLE
41	FLAMMABLE
42	FLAMMABLE
43	FLAMMABLE
50	OXIDIZER
51	OXIDIZER
53	OXIDIZER
54	OXIDIZER
55	OXIDIZER
56	OXIDIZER
57	ORGANIC PEROXIDE
60	POISON
61	POISON
72	RADIOACTIVE
73	RADIOACTIVE
74	RADIOACTIVE
80	CORROSIVE
81	CORROSIVE
82	CORROSIVE
83	CORROSIVE
84	CORROSIVE
85	CORROSIVE

[1] FLAMMABLE or COMBUSTIBLE, as appropriate.

TABLE (2)

A	B
If in accordance with § 172.101 or § 172.602, a material is assigned the hazard information number.	The highway or rail transport vehicle must be placarded on each side and each end.
17	EXPLOSIVES [1]
19	EXPLOSIVES [1]
26	POISON (and NONFLAMMABLE GAS [2])
27	POISON (and OXIDIZER [2])
28	POISON (and FLAMMABLE GAS [2])
29	POISON (and FLAMMABLE GAS [2])
34	FLAMMABLE
35	FLAMMABLE
36	FLAMMABLE
44	FLAMMABLE W
45	FLAMMABLE W
46	FLAMMABLE W
47	FLAMMABLE W
48	FLAMMABLE W
58	ORGANIC PEROXIDE
59	ORGANIC PEROXIDE
62	POISON
64	POISON
65	POISON
67	POISON
71	RADIOACTIVE
78	RADIOACTIVE
79	RADIOACTIVE

[1] The placards for rail transport vehicles must be as specified in § 172.513.

[2] Required only when material is in a portable tank exceeding 110 gallons capacity, a cargo tank, or tank car.

TABLE (3)

A	B
The required display of a placard bearing the hazard information number	May be canceled by display of a placard (when required) bearing the hazard information number
15	17, 19, 23, 24, 34, 35, 36.
17	19.
19	No exception.
20	21, 22, 23, 24, 26, 27, 28.
21	24, 26, 27, 28.
22	No exception.
23	24.
24	No exception.
26	28.
27	No exception.
28	No exception.
29	No exception.
30[1]	31, 32, 34, 35, 36.
31	32, 35, 36.
32	36.
34[1]	35, 36.
35	36.
36	No exception.
38	No exception.
40	15, 17, 30, 31, 32, 34, 35, 36, 41, 42, 43.
41	32, 35, 36, 43.
42	36, 38, 43.
43	No exception.
44	45, 46, 47.
45	47.
46	47.
47	No exception.
48	No exception.
50	51, 53, 54, 55, 56, 57, 59.
51	53, 55, 56.
53	No exception.
54	55, 56.
55	56.
56	No exception.
57	59.

TABLE (3)

A	B
The required display of a placard bearing the hazard information number	May be canceled by display of a placard (when required) bearing the hazard information number
58	No exception.
59	No exception.
60	61, 62, 64, 65, 67.
61	65, 67.
62	64, 65, 67.
64	67.
65	67.
67	No exception.
71	No exception.
72	No exception.
73	No exception.
74	No exception.
78	No exception.
79	No exception.
80	31, 32, 35, 36, 51, 53, 55, 56, 60, 61, 81, 83, 85.
81	32, 36, 53, 60, 61, 84, 85.
82	84, 85.
83	31, 32, 35, 36, 61, 85.
84	No exception.
85	32, 36.

[1] On tank motor vehicles, a FLAMMABLE placard may be displayed in place of a COMBUSTIBLE placard but a combustible placard may not be displayed in place of a FLAMMABLE placard.

NOTE: Table (3) does not take into account segregation requirements for shipments by water.

(b) Except for cargo tanks, tank cars, and portable tanks—

(1) A DANGEROUS placard may be used in place of any placard specified for a material in Table (1), if the aggregate gross weight of material or materials bearing the same hazard information number loaded in a transport vehicle at one location is not more than 5,000 pounds, and

(2) For transportation by highway only, a motor vehicle does not have to be placarded if it contains less than 1,000 pounds (aggregate gross weight) of a material or materials covered by Table (1).

(c) Table (3) is not mandatory. Its purpose is to list permitted exceptions to the placards specified in Tables (1) and (2).

(d) OXYGEN 22 placards may be used to identify liquefied oxygen contained in a manner so that it does not meet the definition in § 173.300 of this subchapter.

(e) A COMBUSTIBLE placard is not required when each package containing combustible liquids in a transport vehicle has a capacity of 110 gallons or less and the hazard information number assigned each combustible liquid is 30.

§ 172.503 Giving and affixing placards—transport vehicles.

(a) *Highway.* Unless the carrier's vehicle is already placarded in compliance with § 172.502, each person giving a hazardous material for transportation by highway shall give the carrier the four placards specified for the material. If no representative of the carrier is present when the vehicle is loaded, the person giving the hazardous material for transportation must affix the placards specified for the material to the transport vehicle.

(b) *Rail.* Each person giving a hazardous material for transportation by rail shall affix the placards specified for the material to the rail car containing the material, unless the placards already displayed on motor vehicles, transport containers, or portable tanks that are on the rail car comply with § 172.502 as it pertains to placarding the rail car. In addition—

(1) Each tank car containing a flammable liquid having a vapor pressure exceeding 16 p.s.i.a at 100°F. must have the DOME placard affixed as specified in § 173.119(h) of this subchapter; and

(2) Each rail car containing lading that has been fumigated or treated with poisonous liquid, solid, or gas must have the placard specified in § 173.426 of this subchapter affixed on or near each door.

§ 172.504 Transport containers.

Each person who loads a hazardous material into a transport container having a capacity of 640 cubic feet or more shall affix placards to it in the manner specified in § 172.502 for transport vehicles. When intended for transportation by air, a transport container having a capacity of less than 640 cubic feet must have at least one placard, as specified in § 172.502, affixed to it, unless it is labeled in accordance with subpart E of this Part.

§ 172.505 Cargo tanks and portable tanks.

(a) Each cargo tank, or portable tank of 1,000 or more gallons capacity must be placarded in accordance with § 172.502 whether loaded or empty, unless following transportation of a hazardous material it has been—

(1) Reloaded with a material not subject to this subchapter; or

(2) Sufficiently cleaned and purged of vapors to remove any potential hazard.

§ 172.506 Empty tank cars.

(a) Each empty tank car must be placarded with an EMPTY placard that corresponds to the placard that was required for the material the tank car last contained unless the tank car has been—

(1) Reloaded with a material not subject to this subchapter; or

(2) Sufficiently cleaned and purged of vapors to remove any potential hazard.

§ 172.508 Placing, attaching, and maintenance of placards.

(a) Each placard on a highway or rail transport vehicle must—

(1) Be readily visible from the direction it faces, except in the direction of another vehicle to which the vehicle is coupled;

(2) Not be obscured by appurtenances and devices, such as ladders, pipes, doors, and tarpaulins;

(3) Not, so far as practicable, have dirt and water directed to it from the wheels of the vehicle;

(4) Not be near any marking (such as advertising) that could substantially reduce its effectiveness;

(5) Have the words printed on it displayed horizontally, reading from left to right; and

(6) Be maintained in good condition so that its effectiveness will not be substantially reduced due to damage, deterioration, or obscurement that could be caused by dirt.

(b) Each placard must be attached either to the surface of a transport vehicle or to a placard board thereon, or be mounted in a holder thereon. The means used to attach a placard may not obscure any part of its surface other than the black borders. Dimensional specifications for a recommended placard holder for the diamond placard are set forth in Appendix A to this subpart.

(c) Each required placard must be placed on the front of the tractor of a tractor-semitrailer combination, instead of the front end of a semitrailer, if the semitrailer—

(1) Is being used to transport Class A explosives or Class B explosives;

(2) Is a cargo tank;

(3) Is being used to transport a portable tank of more than 1,000 gallons capacity; or

(4) Has compressed gas cylinders permanently attached to it.

§ 172.509 Permitted placard modifications.

(a) The word "GASOLINE" may be used in place of the word "FLAMMABLE" on a placard, specified in § 172.533, that is affixed to a tank car or cargo tank being used to transport gasoline, whether empty or loaded. The word "GASOLINE" must be in letters of the same size as those in the word "FLAMMABLE."

(b) The words "FUEL OIL" may be used in place of the word "COMBUSTIBLE" on the placard specified in § 172.535, that is affixed to a tank car or cargo tank being used to transport a fuel oil that is not classed as flammable, whether empty or loaded. The words "FUEL OIL" must be in letters of the same size as those in the word "COMBUSTIBLE."

§ 172.511 Placard specifications.

(a) A placard may be made of any plastic, metal, or other material that is equal or better in strength and durability than the tagboard specified in paragraph (b) of this section.

(b) A placard made of tagboard must be of material that is—

(1) Not less than that designated commercially as white tagboard, 100 percent sulfate;

(2) Not less than 125 pounds per ream of 24 by 36-inch sheets;

(3) Able to pass at least a 60 p.s.i. Mullen test; and

(4) Able to withstand open weather exposure for at least 30 days without a substantial reduction in effectiveness.

(c) The specifications for colors in Appendix A to this Part must be used for the colors prescribed in §§ 172.513 through 172.550.

§ 172.512 Hazard information number.

The hazard information number assigned to a hazardous material must be entered on each placard required in §172.502. If more than one placard is required for the same material, the hazard information number for the material must be entered on each placard.

§ 172.513 Standard requirements for EXPLOSIVES placards.

(a) Except for size and color the EXPLOSIVE placard for Class A explosives and Class B explosives must be as follows:

(b) In addition to complying with § 172.520 and Appendix B to this subpart the EXPLOSIVES placard must have the top and lower triangles orange and the symbol black.

(c) Except that the diamond EXPLOSIVES placard is centered on a 15 inch (381 mm.) white square with a black border, the specifications for the rail transport vehicle EXPLOSIVES placard are as prescribed for the diamond EXPLOSIVES placard.

(1) Except for size and color, the rail transport EXPLOSIVES placard for Class A explosives and Class B explosives must be as follows:

(d) The hazard class and division number prescribed for dangerous goods in the United Nations Recommendation entitled "Transport of Dangerous Goods (1970)" may be entered on each EXPLOSIVES placard in the white center area below the word "Explosives." The numerals should be 0.75 inch (19.0 mm.) in height and black.

§ 172.520 General specifications for diamond placards.

(a) Dimensional specifications for each diamond placard are as set forth in Appendix B to this subpart.

(b) The center area of each placard must be white, except the CORROSIVE placard must have a black center area.

(c) Each placard must have a white block for the hazard information number in the lower triangle.

(d) Each letter and number must be black on a white background except—

(1) The letters in the words "CORROSIVE" and "EMPTY" must be white on black;

(2) The letters in the word "POISON" must be red; and

(3) The W must be white on blue.

(e) The border and horizontal bars on each placard must be black.

§ 172.522 DANGEROUS placard.

(a) Except for size and color, the DANGEROUS placard must be as follows:

(b) In addition to complying with § 172.520 and Appendix B to this subpart, the DANGEROUS placard must have a red triangle at the top and the lower part of the placard must be white.

§ 172.527 Standard requirements for diamond EMPTY placards.

(a) In addition to the specifications in Appendix B to this subpart, the following apply to each diamond EMPTY placard:

(1) The triangle at the top of the placard must be black with the "EMPTY" in white letters.

(2) The midsection and lower triangle on the EMPTY placard must be as specified in § 172.520, Appendix B to this subpart, and §§ 172.528, 172.530, 172.531, 172.533, 172.535, 172.538, 172.540, 172.542, 172.544, 172.547, and 172.550, as appropriate for the residue of the commodity being transported.

(b) The top part of each EMPTY placard must be as illustrated on the FLAMMABLE-EMPTY placard which, except for size and color, must be as follows:

§ 172.528 NON-FLAMMABLE GAS placard.

(a) Except for size and color, the NON-FLAMMABLE GAS placard, must be as follows:

(b) In addition to complying with § 172.520 and Appendix B to this sub-

part, the NON-FLAMMABLE GAS placard must have the top and lower triangles green and the symbol white.

§ 172.530 OXYGEN placard.

(a) Except for size and color, the OXYGEN placard must be as follows:

(b) In addition to complying with § 172.520 and Appendix B to this subpart, the OXYGEN placard must have the top and lower triangles yellow and the symbol black.

§ 172.531 FLAMMABLE GAS placard.

(a) Except for size and color, the FLAMMABLE GAS placard must be as follows:

(b) In addition to complying with § 172.520 and Appendix B to this subpart, the FLAMMABLE GAS placard must have the top and lower triangles red and the symbol white.

§ 172.533 FLAMMABLE and FLAMMABLE W placards.

(a) Except for size and color, the FLAMMABLE placard must be as follows:

(b) In addition to complying with § 172.520 and Appendix B to this subpart the FLAMMABLE placard must have the top and lower triangles red and the symbol white.

(c) Except for size and color, the FLAMMABLE W placard must be as follows:

(d) The FLAMMABLE W placard specifications are the same as the specifications for the FLAMMABLE W placard, except for the blue triangle with the white symbol at the top of the placard.

§ 172.535 COMBUSTIBLE placard.

(a) Except for size and color, the COMBUSTIBLE placard must be as follows:

(b) In addition to complying with § 172.520 and Appendix B to this subpart, the COMBUSTIBLE placard must have the top and lower triangles red and the symbol white.

§ 172.538 OXIDIZER placard.

(a) Except for size and color, the OXIDIZER placard must be as follows:

(b) In addition to complying with § 172.520 and Appendix B to this subpart, the OXIDIZER placard must have the top and lower triangles yellow and the symbol black.

§ 172.540 ORGANIC PEROXIDE placard.

(a) Except for size and color, the ORGANIC PEROXIDE placard must be as follows:

(b) In addition to complying with § 172.520 and Appendix B to this subpart the ORGANIC PEROXIDE placard must have the top triangle red with the symbol white. The lower triangle must be yellow.

§ 172.544 POISON placard.

(a) Except for size and color, the POISON placard must be as follows:

(b) In addition to complying with § 172.520 and Appendix B to this subpart, the POISON placard must be white with the symbol black and white. The letters in the word "POISON" must be red.

§ 172.547 RADIOACTIVE placard.

(a) Except for size and color, the RADIOACTIVE placard must be as follows:

(b) In addition to complying with § 172.520 and Appendix B to this subpart, the RADIOACTIVE placard must have the top triangle yellow with the symbol black. The lower triangle must be purple.

§ 172.550 CORROSIVE placard.

(a) Except for the size and color, the CORROSIVE placard must be as follows:

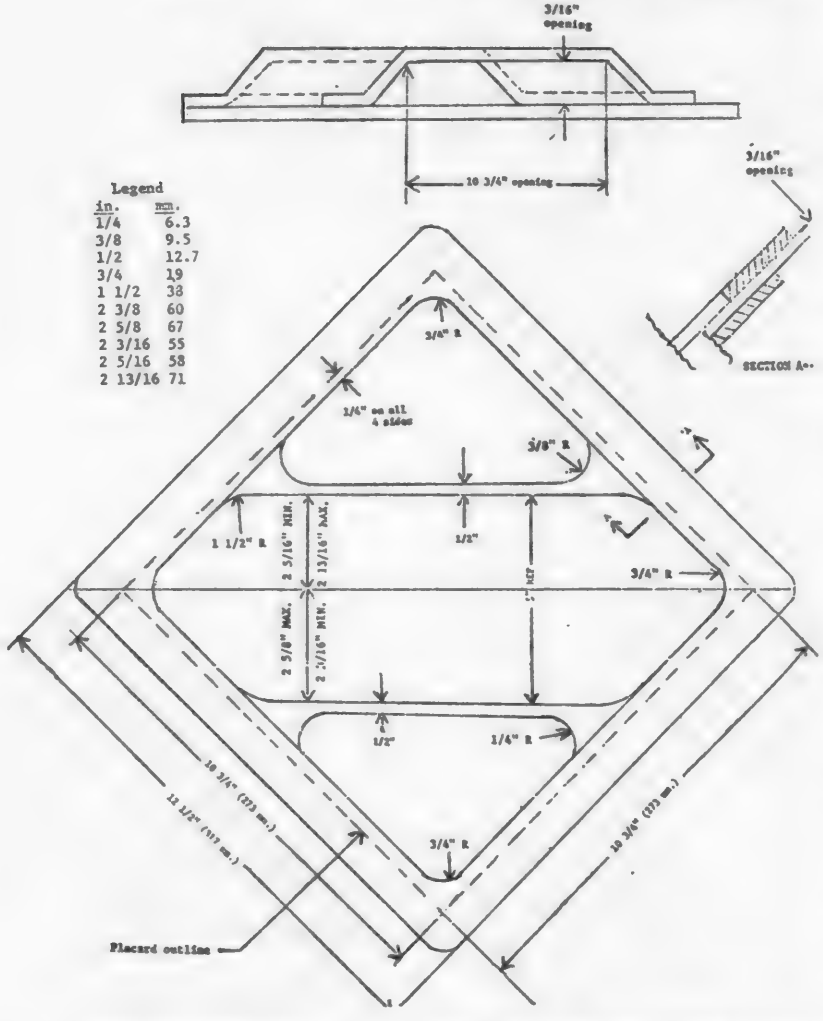
(b) In addition to complying with § 172.520 and Appendix B to this subpart, the CORROSIVE placard specifications are as follows:

(1) The center area of the placard between the upper and lower white triangles must be black, except for the letters in the word "Corrosive" which must be white.

(2) The symbol must be black and white.

Appendix to Subpart F

Appendix A—Dimensional Specifications for Recommended Placard Holder for the Diamond Placard



Appendix to Subpart F

Appendix B—Dimensional Specifications for Placards

1. *General specifications for placards.*

(a) In addition to the dimensional specifications for the diamond placard shown in Appendix C to Subpart F, the hazard information number block of each placard must be 2¾ inches (70 mm.) wide and 2¼ inches (57 mm.) high. The top of the hazard information number block must be 4-5/16 inches (109 mm.) from the lower tip of the placard.

(b) the words "Hazard Information No." must be in letters ⅛-inch (3.2 mm.) high and must be inside the hazard information block. These words may be omitted when the hazard information number is pre-printed on the placard.

(c) The digit size in the hazard information number must be 2 inches (51 mm.) high.

(d) Except the NON-FLAMMABLE GAS and POISON placards, the letter size in the placard name must be 2 inches (51 mm.) high in each placard. The letters in the words "NON-FLAMMABLE GAS" must be 1⅜ inches (45 mm.) high, Franklin Gothic Extra Condensed set type. The letters in the word "POISON" must be 3 inches (76 mm.) high, Franklin Gothic Extra Condensed set type.

(e) Except the NON-FLAMMABLE GAS, FLAMMABLE GAS, and ORGANIC PEROXIDE placards, the placard name must be centered across the horizontal diagonal of each placard.

(f) The lower edge of the words "NON-FLAMMABLE" in the NON-FLAMMABLE GAS placard must be even with the horizontal diagonal.

(g) The lower edge of the word "FLAMMABLE" in the FLAMMABLE GAS placard must be ¼-inch (6.3 mm.) below the horizontal diagonal.

(h) The lower edge of the word "ORGANIC" in the ORGANIC PEROXIDE placard must be ⅛-inch (3.2 mm.) above the horizontal diagonal, and the upper edge of the word "PEROXIDE" must be ⅜-inch (9.5 mm.) below the horizontal diagonal.

(i) The word "GAS" in the NON-FLAMMABLE GAS and FLAMMABLE GAS placards must be centered on the respective placard and be ¼-inch (6.3 mm.) below the base of the words "NON-FLAMMABLE" and "FLAMMABLE," as appropriate.

(j) Visual spacing between the letters in the placard names must be used to achieve maximum readibility.

2. *General specifications for EMPTY placards.*

(a) In addition to the specifications in § 172.527 of subpart F, the following apply to EMPTY placards:

(1) The letter size in the word "EMPTY" must be 1⅝-inch (23.8 mm.) high with approximately ⅜-inch (4.8 mm.) stroke.

(2) The lower edge of the letters in the word: "EMPTY" must be 3¾ inches (95 mm.) above the horizontal diagonal.

(3) The center area and upper triangle must be black in the CORROSIVE—EMPTY placard, except that the words "CORROSIVE" and "EMPTY" must be white.

3. *Specific specifications for diamond placards.*

(a) In addition to the general specifications in paragraph 1 of this Appendix, the following apply to each diamond placard as indicated:

(1) EXPLOSIVES placard. In addition to complying with § 172.513 of subpart F, the EXPLOSIVES placard must have a black symbol 3¼ inches (83 mm.) across the longest verticle dimension and 6⅜ inches (162 mm.) across the longest horizontal dimension.

(i) In addition to the specifications for the EXPLOSIVES placard, the rail transport vehicle EXPLOSIVES placard must be centered on a 15-inch (381 mm.) white square that has a ½-inch (12.7 mm.) black border.

(2) NON-FLAMMABLE GAS placard. In addition to complying with § 172.528 of subpart F, the NON-FLAMMABLE GAS placard must have a white symbol ¾-inch (19 mm.) at the widest part by 3 11/16 inches (94 mm.) long, with the lowest extremity of the base 3 9/16 inches (90 mm.) above the horizontal diagonal. The symbol must be inclined to the right approximately 18 degrees above the horizontal.

(3) FLAMMABLE GAS placard. In addition to complying with § 172.531 of subpart F, the FLAMMABLE GAS placard must have—

(i) The lower part of the horizontal bar in the white symbol 9/16-inch (14.3 mm.) above the base of the upper red triangle; and

(ii) The symbol approximately 2 9/16 inches (65 mm.) high from the base of the bar and 1⅞ inches (48 mm.) across the widest part and the bar.

(4) FLAMMABLE placard. In addition to complying with § 172.533 of subpart F, the FLAMMABLE placard must have a symbol with dimensions as specified for the FLAMMABLE GAS placard in paragraph 3(a)(3) of this Appendix.

(5) FLAMMABLE W placard. The FLAMMABLE W placard specifications are the

same as the specifications for the FLAMMABLE placard set forth in subparagraph (4) of this paragraph, except that —

(i) The upper triangle must be blue; and

(ii) The W symbol must be—

(A) White;

(B) Approximately centered in the blue triangle;

(C) Approximately 1¾ inches (44 mm.) across the base, 2¾ inches (70 mm.) across the top, 2¼ inches (57 mm.) high; and

(D) Made with a 5/16-inch (7.9 mm.) stroke in the W and a ¼-inch (6.4 mm.) stroke in the diagonal.

(6) COMBUSTIBLE placard. In addition to complying with § 172.535 of subpart F, the COMBUSTIBLE placard must have a white symbol with dimensions as specified for the FLAMMABLE GAS placard in paragraph 3(a)(3) of this Appendix.

(7) OXYGEN and OXIDIZER placards. In addition to complying with §§ 172.530 and 172.538 respectively of subpart F, the OXYGEN and OXIDIZER placards must have a symbol with dimensions approximately as follows:

(i) The bar, ⅛-inch (3.2 mm.) wide and 2⅜ inches (60 mm.) long.

(ii) The diameter of the inner circle, ¾-inch (19 mm.) and the outer circle 1⅛ inches (29 mm.).

(iii) The flame 2 9/16 inches (65 mm.) high from the base of the bar, and 2⅛ inches (54 mm.) across the widest part.

(8) ORGANIC PEROXIDE placard. In addition to complying with § 172.540 of subpart F, the ORGANIC PEROXIDE placard must have a white symbol as specified for the FLAMMABLE GAS placard in paragraph 3(a)(3) of this Appendix.

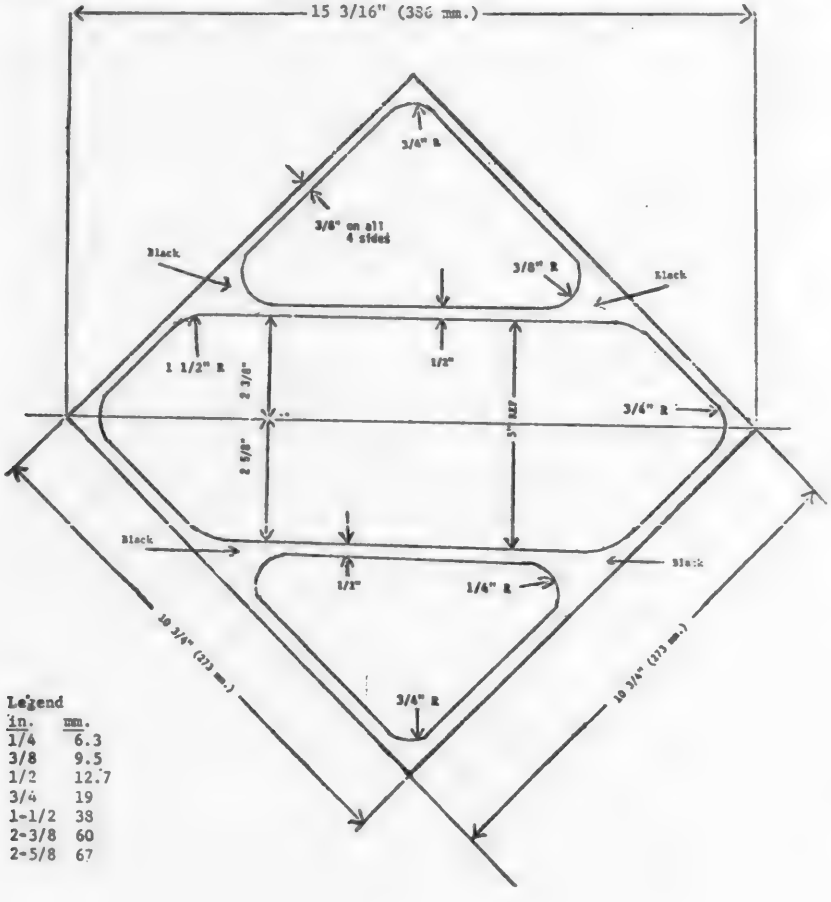
(9) POISON placard. In addition to complying with § 172.544 of Subpart F, the POISON placard must have a black and white symbol with its lower extremity 7/16-inch (11.1 mm.) above the base of the upper triangle. The black line symbol must have a skull measuring 2 9/16 inches (65 mm.) high and crossbones measuring 3½ inches (89 mm.) long.

(10) RADIOACTIVE placard. In addition to complying with § 172.547 of subpart F, the RADIOACTIVE placard must have a black radioactive symbol centered in the upper triangle, and having a radius of approximately 1¼ inches (32 mm.).

(11) CORROSIVE placard. In addition to complying with § 172.550 of subpart F, the CORROSIVE placard must have a black and white symbol measuring 2 inches (51 mm.) high and 4¼ inches (108 mm.) across the widest part with the base of the lower extremity ¾-inch (19 mm.) above the base of the top triangle.

APPENDIX TO SUBPART F

APPENDIX C: DIMENSIONAL SPECIFICATIONS FOR THE DIAMOND PLACARD



Legend	
in.	mm.
1/4	6.3
3/8	9.5
1/2	12.7
3/4	19
1-1/2	38
2-3/8	60
2-5/8	67

Subpart G—Hazard Information Numbers

§ 172.600 Hazard information number required.

(a) Before offering a hazardous material subject to this subchapter for transportation, each person shall—

(1) Determine that a hazard information number has been designated for the material in § 172.101;

(2) Assign a hazard information number to the material in accordance with this subpart; or

(3) Determine that the material is not required to have a hazard information number according to this subchapter.

(b) This subpart does not apply to a material classed as Etiologic Agents or ORM–A, B, C, or D.

§ 172.602 Derivation of the hazard information number.

(a) When a hazard information number is not designated for a hazardous material listed in § 172.101, the shipper shall assign it a hazard information number in accordance with the following procedure:

(1) Determine from Appendices A and B to this subpart the definitions that apply to the material, but if any definition in Appendix B applies to the material, he may not assign a hazard information number to the material;

(2) If only one definition in Appendix A to this subpart applies to the material, he shall assign a hazard information number to the material in accordance with the following table:

TABLE I

Hazard information No.	Type of material as defined in Appendix A
05	Irritating material.
20	Nonflammable gas, compressed or liquified.
23	Flammable gas, compressed or liquified.
30	Flammable or combustible liquid.
36	Pyrophoric liquid.
40	Flammable solid.
42	Pyrophoric solid.
50	Oxidizer, liquid or solid.
60	Highly toxic liquid or solid.
62	Extremely toxic liquid or solid.
64	Extremely toxic liquid or solid by skin absorption.
80	Corrosive, liquid or solid.

(3) If more than one definition in Appendix A to this subpart applies to the material, determine the first digit of the hazard information number from the first entry in the following table (reading from the top) that applies to the material:

TABLE II

First	Type of material as defined in Appendix A
2	Flammable or nonflammable gas.
6	Extremely toxic liquid or solid.
3	Flammable liquid.
5	Oxidizing material, liquid or solid.
4	Flammable solid.
8	Corrosive liquid.
6	Highly toxic liquid or solid.
8	Corrosive solid.
3	Combustible liquid.

NOTE: If an irritating material also meets another definition in Appendix A to this subpart, its hazard information number must be derived according to that definition unless it is a corrosive solid or a combustible liquid, in which case the hazard information number is 05.

For example, if a material is a "Flammable liquid" and a "Corrosive liquid," the first digit of its hazard information number is 3 because 3 (flammable liquid) comes before 8 (corrosive liquid) when reading from the top downward in Table II.

(4) Then determine the complete hazard information number for the material where—

(i) The first digit of the number is the number derived in accordance with paragraph (a)(3) of this section, and

(ii) The complete number is the number in Table III that corresponds to the adjacent "Hazards" entry that applies to the material.

TABLE III

Hazard information No.	Hazards
	GASES, COMPRESSED OR LIQUEFIED
21	Nonflammable and corrosive.
23	Flammable and corrosive.
	LIQUIDS
31	Flammable and corrosive.
32	Flammable and highly toxic (corrosive).[1]
	SOLIDS
41	Flammable and highly toxic (corrosive).[1]
43	Flammable, pyrophoric, and highly toxic (corrosive).[1]
	LIQUIDS OR SOLIDS
51	Oxidizer and corrosive.
53	Oxidizer and highly toxic (corrosive).[1]
	LIQUIDS OR SOLIDS
61	Highly toxic and combustible.
63	Extremely toxic liquid or solid (corrosive).[1]
64	Extremely toxic by skin absorption (corrosive).[1]
65	Extremely toxic by ingestion or inhalation and flammable or combustible (corrosive).[1]
67	Extremely toxic by skin absorption and flammable or combustible (corrosive).[1]
	LIQUIDS OR SOLIDS
81	Corrosive and highly toxic.
82	Corrosive and HOD.[2]
83	Corrosive and combustible.
84	Corrosive, HOD,[2] and highly toxic.
85	Corrosive, combustible, and highly toxic.

[1] Means that material also may be corrosive.
[2] Means heat of dilution as defined in Appendix A to this subpart.

(b) *Low specific activity radioactive materials.* Unless a hazard information number is assigned to a low specific activity radioactive material that is listed by name in § 172.101, the number 71 shall be assigned when the material is offered for transportation under the conditions set forth in § 173.392(b) of this subchapter.

(c) *Explosives.* A person may not assign a hazard information number to a new explosive or a new explosive device until it has been classified in accordance with § 173.86 of this subchapter.

(d) In any case in which the regulations in this Part do not authorize or provide for such an assignment, the Department will provide a written designation of the hazard information number to be assigned to a material.

(e) If a hazard information number has been assigned to a material, and the material has not been mixed with another material or otherwise changed, rederivation of its hazard information number is not required before the material is again offered for transportation.

APPENDIXES TO SUBPART G

INDEX TO APPENDIX A DEFINITIONS

Definition No.	Title
I	Nonflammable gas, compressed or liquefied.
II	Flammable gas, compressed or liquefied.
III	Flammable liquid.
IV	Combustible liquid.
V	Flammable solid.
VI	Oxidizing material.
VII	Highly toxic liquid or solid.
VIII	Extremely toxic liquid or solid by ingestion or inhalation.
IX	Extremely toxic liquid or solid by skin absorption.
X	Corrosive liquid or solid.
XI	Corrosive gas.
XII	HOD (heat of dilution).
XIII	Pyrophoric liquid.
XIV	Pyrophoric solid.
XV	Irritating Material.

INDEX TO APPENDIX B DEFINITIONS

Definition No.	Title
I	Highly or extremely toxic gas—compressed or liquefied.
II	Organic peroxide.
III	Thermally unstable material.
IV	Water reactive material.

APPENDIX TO SUBPART G

DEFINITIONS

I *Nonflammable gas, compressed or liquefied:* As defined in § 173.300 of this subchapter.

II *Flammable gas, compressed or liquefied:* As defined in § 173.300 of this subchapter.

III *Flammable liquid:* (Docket HM–102). Any liquid having a flash point below 100°F. (37.8°C.), but excluding any mixture that has one component or more with a flash point of 100°F. (37.8°C.) or higher, which makes up at least 99 percent of the total volume of the mixture.

(a) "Flash point" means the minimum temperature at which a liquid gives off vapor within a test vessel in sufficient concentration to form an ignitable mixture with air near the surface of the liquid and is determined as follows:

(1) For a liquid having a viscosity of less than 45 Saybolt Universal Seconds (SUS) at 100°F. (37.8°C.), that does not contain suspended solids, and does not have a tendency to form a surface film while under test, use the procedure specified in the Standard Method of Test for Flash Point by Tag (Tagliabue) Closed Tester (ASTM D56–70).

(2) For a liquid that has a viscosity of 45 SUS or more at 100°F. (37.8°C.), that contains suspended solids, or that has a tendency to form a surface film while under test, the procedures specified or alternate tests authorized in the Standard Method of Test for Flash Point by Pensky-Martens Closed Tester (ASTM D93–71) shall be used.

(3) For a liquid that is a mixture of compounds that have different volatility and flash points, its flash point shall be determined as specified in paragraph (a)(1) or (a)(2) of this paragraph on the material in the form in which it is to be shipped. If it is determined by this test that the flash point is higher than 20°F. (−6.67°C.), a sample of the liquid, evaporated to 90 percent of its original volume, shall be tested. The lower value of the two tests shall be the flash point of the material.

IV *Combustible liquid:* (Docket HM–102). Any liquid having a flash point at or above 100°F. (37.8°C.), and below 200°F. (93.4°C.), but excluding any mixture having one component or more with a flash point of at least 200°F. (93.3°C.) that makes up at least 99 percent of the total volume of the mixture. "Flash point" is determined in accordance with paragraph III(a) of this Appendix.

V *Flammable solid:* Any material, other than an explosive, that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or that can be ignited readily and that when ignited burns so vigorously and persistently as to create a serious transportation hazard.

VI *Oxidizing material:*

(a) Although not itself necessarily combustible, may initiate and promote combustion in other materials causing fire itself or through the release of oxygen or of other strong oxidizing gases.

(b) When mixed with dry or wet red oak sawdust and heated at below 200°F. in an open container, ignites spontaneously.

(c) When by itself or mixed with a combustible may react violently when heated under confinement or subjected to shock.

VII *Highly toxic liquid or solid:*

(a) Ingestion (oral): Any material that has a single dose LD_{50} of more than 5, but not more than 50, milligrams per kilogram of body weight when orally administered to both male and female, young adult, white rats.

(b) Inhalation: Any material that, when administered by continuous inhalation for one hour or less to both male and female, young adult, white rats has a LC_{50} of:

(1) More than 50, but not more than 200, parts per million by volume of gas or vapor; or

(2) More than 0.50, but not more than 2, milligrams of mist or dust per liter of air.

If the product is administered to the rats as a dust or mist, and if it is reasonably foreseeable that the concentration could be met by humans, more than 90 percent of the particles available for inhalation in the test must have a diameter of 10 microns or less.

(c) Skin absorption: Any material that has a LD_{50} of greater than 20, but not more than 200, milligrams per kilogram of body weight when administered by continuous contact for 24 hours with the bare skin of rabbits, according to the test procedures described in Appendix A to Part 173 of this subchapter.

VIII *Extremely toxic liquid or solid by ingestion or inhalation:*

(a) Ingestion (oral): Any material that has a single dose LD_{50} of 5 milligrams or less per kilogram of body weight when administered orally to both male and female, young adult rats.

(b) Inhalation: Any material that, when administered by continuous inhalation for one hour or less, to both male and female, young adult white rats has a LC_{50} of 50 or less parts per million by volume of gas or vapor, or 0.50 or less milligrams of mist or dust per liter of air. If the material is administered to the rats as a dust or mist, and if it is reasonably foreseeable that those con-

centrations could be met by humans, more than 90 percent of the particles available for inhalation in the test must have a diameter of 10 microns or less.

IX *Extremely toxic liquid or solid by skin absorption:*

Any material that has a LD_{50} of 20 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours with the bare skin of rabbits, according to test procedures described in Appendix A to Part 173 of this subchapter.

X *Corrosive liquid or solid:* A liquid or solid material that—

(a) Causes irreversible change or destruction to the intact skin of an albino rabbit after an exposure period of four hours or less, when tested in accordance with the technique described in Appendix A to Part 173 of this subchapter.

(b) Has a corrosion rate exceeding 0.250-inch (6.3 mm.) per year (IPY) on steel (SAE 1020) at a test temperature of 130°F. An acceptable test is described in NACE Standard TM–01–69.

XI *Corrosive gas:* A gas as defined in section I or II of this Appendix which, when tested as a saturated aqueous solution, meets the definition in section X of the Appendix.

XII *Heat of dilution (HOD):* A temperature rise of more than 80°F. (26.7°C.) occurring when a material is diluted at a weight ratio of 1:1 with water.

XIII *Pyrophoric liquid:* A liquid that will ignite spontaneously in dry or moist air at a temperature of 130°F. (54.4°C.) or below.

XIV *Pyrophoric solid:* A solid material that will ignite spontaneously in dry or moist air at a temperature of 130°F. (54.4°C.) or below.

XV *Irritating material:* As defined in § 173.326(b) of this subchapter.

APPENDIX B TO SUBPART G

DEFINITIONS

I *Highly or extremely toxic gas—compressed or liquefied:* As defined in § 173.300 of this subchapter and having a LC_{50} value of 200 parts per million or les by volume of gas or vapor when administered to both male and female young adult white rats by continuous inhalation for one hour or less.

II *Organic proxide:* An organic compound containing the bivalent –0–0– structure and which may be considered a derivative of hydrogen peroxide where one or more of the hydrogen atoms have been replaced by organic radicals.

III *Self-reactive or thermally unstable material:* A material that, as shipped in its packaging, which by itself (i.e., without the use of any additional material) is thermodynamically able to undergo a violent and destructive exothermic chemical reaction (e.g., decomposition, polymerization, etc.) for which the reaction rate is accelerated by the thermal energy released.

IV *Water reactive material:* A material that can undergo a chemical reaction with water to produce a gas that is flammable or toxic in a concentration that can be encountered during transportation.

APPENDIX TO PART 172

APPENDIX A—SPECIFICATIONS FOR COLORS

Specifications for colors[1] (in Munsell notations) on labels and placards are as follows:

[1] Black and colors on labels and placards must be able to withstand a 72-hour fade-ometer test, and to withstand open weather exposure for at least 30 days without a substantial reduction in effectiveness.

Color	Paint, lacquer, enamel, and plastic Centroid	Tolerances Hue +	Hue −	Value +	Value −	Chroma[2]	Chroma[2] −	Chroma[2] −−	Printing ink[4] Centroid
Red	7.5R 4.0/14	8.5R	6.5R	4.5/	3.5/	/16	/12		7.5R 4.3/13.
Orange	5.0YR 6.0/15	6.25YR	3.75YR	6.5/	5.5/	/16	/13		5YR 6.5/14.
Yellow	5.0Y 8.0/12	6.5Y	3.5Y	8.5/	7.5/	/14	/10		5Y 8.2/12.
Green	7.5G 4.0/9	0.5BG	5.0G	4.5/	3.5/	/11	/7	/6	7.5G 4.1/9.
Blue	2.5PB 3.5/10	4.5PB	10.0B	4.0/	3.0/	/12	/8		2.5PB 4.2/10.
Purple	10.0P 4.5/10	2.5RP	7.5P	5.0/	4.0/	/12	/8	/6.5	10P 4.5/12.

[2] The maximum chroma is not limited.

[3] For the colors green and purple, the minimum saturation (chroma) limits for porcelain enamel on metal are lower than for most other surface coatings. Therefore, the minimum chroma limits for porcelain enamel on metal for these 2 colors may be as low as that shown in the Chroma double minus column.

[4] Printed colors approximate opaque centroids and tolerances while allowing for expected differences from production methods and materials.

NOTE.—Color chips are available from the Department of Transportation, Office of Hazardous Materials, Washington, D.C. 20590, as a set of the 6 colors and prescribed tolerances for $18 per set.

List of hazard information cards.

No.	HAZARD INFORMATION Card
01	DANGEROUS
02	
03	
04	
05	IRRITANT
06	
07	
08	
09	
10	
11	
12	
13	
14	
15	EXPLOSIVES CLASS "C"
16	
17	EXPLOSIVES CLASS "B"
18	
19	EXPLOSIVES CLASS "A"
20	NONFLAMMABLE GAS
21	NONFLAMMABLE GAS—CORROSIVE
22	OXYGEN
23	FLAMMABLE GAS
24	FLAMMABLE GAS—CORROSIVE
25	
26	NONFLAMMABLE GAS—POISON
27	GAS—OXIDIZER—POISON—CORROSIVE
28	FLAMMABLE GAS—POISON (CORROSIVE)[1]
29	FLAMMABLE GAS—POISON—EXTREMELY HAZARDOUS (CORROSIVE)[1]
30	COMBUSTIBLE or FLAMMABLE LIQUID
31	FLAMMABLE LIQUID—CORROSIVE
32	FLAMMABLE LIQUID—POISON (CORROSIVE)[1]
33	
34	COMBUSTIBLE or FLAMMABLE LIQUID—SELF REACTIVE or THERMALLY UNSTABLE
35	FLAMMABLE LIQUID—CORROSIVE—SELF REACTIVE or THERMALLY UNSTABLE
36	FLAMMABLE LIQUID—POISON—SELF REACTIVE or THERMALLY UNSTABLE (CORROSIVE)[1]
37	
38	PYROPHORIC LIQUID
39	
40	FLAMMABLE SOLID
41	FLAMMABLE SOLID—POISON (CORROSIVE)[1]
42	FLAMMABLE SOLID—PYROPHORIC
43	FLAMMABLE SOLID—PYROPHORIC—POISON (CORROSIVE)[1]
44	FLAMMABLE SOLID—WATER REACTIVE
45	FLAMMABLE SOLID—POISON—WATER REACTIVE (CORROSIVE)[1]
46	FLAMMABLE SOLID—PYROPHORIC—WATER REACTIVE
47	FLAMMABLE SOLID—PYROPHORIC—POISON—WATER REACTIVE (CORROSIVE)[1]
48	FLAMMABLE SOLID—WET—DESENSITIZED EXPLOSIVES
49	
50	OXIDIZER
51	OXIDIZER—CORROSIVE
52	
53	OXIDIZER—POISON (CORROSIVE)[1]
54	OXIDIZER—SELF REACTIVE or THERMALLY UNSTABLE
55	OXIDIZER—CORROSIVE—SELF REACTIVE or THERMALLY UNSTABLE
56	OXIDIZER—POISON—SELF REACTIVE or THERMALLY UNSTABLE (CORROSIVE)[1]
57	ORGANIC PEROXIDE
58	ORGANIC PEROXIDE—REFRIGERATED, HIGHLY SENSITIVE
59	ORGANIC PEROXIDE—EXTREMELY SENSITIVE
60	POISON—HIGHLY TOXIC
61	POISON—HIGHLY TOXIC—COMBUSTIBLE (CORROSIVE)[1]
62	EXTREMELY TOXIC
63	
64	POISON—EXTREMELY TOXIC BY SKIN ABSORPTION (CORROSIVE)[1]
65	POISON—EXTREMELY TOXIC—FLAMMABLE or COMBUSTIBLE (CORROSIVE)[1]
66	
67	POISON—EXTREMELY TOXIC BY SKIN ABSORPTION—FLAMMABLE or COMBUSTIBLE (CORROSIVE)[1]
68	
69	
70	RADIOACTIVE—LOWER HAZARD
71	RADIOACTIVE
72	RADIOACTIVE—OXIDIZER
73	RADIOACTIVE—CORROSIVE
74	RADIOACTIVE—PYROPHORIC
75	
76	
77	
78	RADIOACTIVE—POISON—CORROSIVE—OXIDIZER
79	RADIOACTIVE—EXTREMELY HAZARDOUS
80	CORROSIVE
81	CORROSIVE—POISON
82	CORROSIVE—HOD[2]
83	CORROSIVE—COMBUSTIBLE
84	CORROSIVE—POISON—HOD[2]
85	CORROSIVE—COMBUSTIBLE—POISON
86	
87	
88	
89	

[1] Means that material also may be corrosive.

[2] HOD=Heat of dilution.

DANGEROUS

CONTAINS HAZARDOUS MATERIAL

OBTAIN SHIPPING PAPERS.
They should contain a hazard information number for each listed hazardous material in the vehicle or container.
If shipping papers are not available, use the following as a guide.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF–CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out. Fight fire from maximum distance.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Use water spray to reduce vapors. Do not touch spilled material. Keep combustibles (wood, paper, oil, etc.) away from spilled material. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. LARGE SPILLS: Dike for later disposal.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. Remove contaminated clothing and shoes. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Keep patient warm and quiet.

FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

IRRITANT

POTENTIAL HAZARDS

PACKAGE LABEL

HEALTH	Vapor extremely irritating. May cause extreme burning of eyes resulting in flow of tears. May cause coughing, difficult breathing, and nausea. If exposure is brief, effects last only a few minutes. Effects may be serious if exposed in an enclosed, unventilated area.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS

FIRST AID	Remove to fresh air. Call physician. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Effects should disappear after individual has been exposed to fresh air for 5–10 minutes.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

EXPLOSIVE CLASS "C"

POTENTIAL HAZARDS

FIRE OR EXPLOSION	May burn rapidly. Single containers may explode, without causing mass explosion.
HEALTH	Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	For massive fire in cargo area, use unmanned hose holder or monitor nozzles. Fight fire from maximum distance. If fire not in cargo area extinguish by conventional methods.
SPILL OR LEAK	No flares, smoking or flames in hazard area.
FIRST AID	Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

EXPLOSIVES CLASS "B"

POTENTIAL HAZARDS

	May burn rapidly. May explode if fire reaches cargo area.
HEALTH	Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

	If fire in cargo area, withdraw from area, let fire burn. If fire not in cargo area extinguish by conventional methods. Fight fire from maximum distance. Cool containers with water from maximum distance until well after fire is out. If cargo must be moved use extreme care to avoid shocks.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Do not touch spilled material.
	Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

EXPLOSIVE CLASS "A"

POTENTIAL HAZARDS

	May explode from heat, flame or shock.
HEALTH	Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
(MINIMUM RADIUS 1/2 MILE)
WEAR FULL PROTECTIVE CLOTHING.

	If fire in cargo area, withdraw from area, let fire burn. If fire not in cargo area extinguish by conventional methods. Fight fire from maximum distance. Cool containers with water from maximum distance until well after fire is out. Do not move cargo if it has been exposed to heat. If cargo must be moved use extreme care to avoid shocks.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Do not touch spilled material.
	Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

NON-FLAMMABLE GAS

POTENTIAL HAZARDS

FIRE OR EXPLOSION	May catch fire. Container may explode in heat of fire.
HEALTH	No health hazard outdoors. Vapor indoors may cause dizziness or suffocation. Contact with liquid may cause burns to skin and eyes.

EMERGENCY ACTION

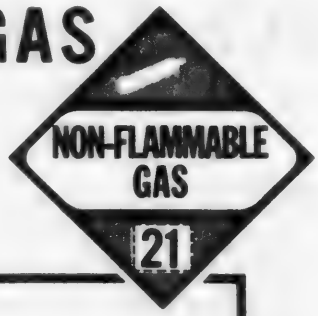
KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out.
SPILL OR LEAK	Stop leak if without risk. Do not touch spilled liquid.
FIRST AID	Remove to fresh air. Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

NON-FLAMMABLE GAS

CORROSIVE



POTENTIAL HAZARDS

FIRE OR EXPLOSION	May catch fire. Container may explode in heat of fire.
HEALTH	Runoff may pollute water supply. Vapor extremely irritating. Contact may cause burns to skin and eyes. If inhaled may be harmful.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out.
SPILL OR LEAK	Stop leak if without risk. Use water spray to reduce vapors. Do not touch spilled liquid. Isolate area until gas has dispersed.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient warm and quiet.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

OXYGEN

FOR USE ON OXYGEN ONLY

POTENTIAL HAZARDS

FIRE OR EXPLOSION	Container may explode in heat of fire. Mixtures with fuels may explode. Gas explosion hazard indoors, outdoors or in sewers. Materials may ignite in oxygen vapor. Automobile engine may catch fire in oxygen atmosphere.
HEALTH	No health hazard outdoors. Contact with liquid may cause burns to skin and eyes.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles. If this is impossible, withdraw from area and let fire burn.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Do not touch spilled liquid. Keep combustibles (wood, paper, oil, etc.) away from spilled material. Isolate area until gas has dispersed.
FIRST AID	Remove to fresh air. Remove contaminated clothing and shoes. Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

FLAMMABLE GAS

POTENTIAL HAZARDS

FIRE OR EXPLOSION	May be ignited by heat, sparks, flames. Flammable vapors may spread away from spill. Containers may explode in heat of fire. Gas explosion hazard indoors,outdoors or in sewers.
HEALTH	Vapor indoors may cause dizziness or suffocation. Contact with liquid may cause burns to skin and eyes. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Let burn unless leak can be stopped immediately. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out. Apply water from sides of tank. Withdraw immediately in case of rising sound from venting safety device. For massive fire in cargo area, use unmanned hose holder or monitor nozzles. If this is impossible, withdraw from area and let fire burn.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Use water spray to reduce vapors. Do not touch spilled liquid. Isolate area until gas has dispersed.
FIRST AID	Remove to fresh air. Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
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FLAMMABLE GAS

CORROSIVE

POTENTIAL HAZARDS

FIRE OR EXPLOSION	May be ignited by heat, sparks, flames. Flammable vapors may spread away from spill. Container may explode in heat of fire. Gas explosion hazard indoors, outdoors or in sewers.
HEALTH	Vapor extremely irritating. Contact may cause burns to skin and eyes.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Let burn unless leak can be stopped immediately. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out. Apply water from sides of tank. For massive fire in cargo area, use unmanned hose holder or monitor nozzles. If this is impossible, withdraw from area and let fire burn.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Use water spray to reduce vapors. Do not touch spilled liquid. Isolate area until gas has dispersed.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient warm and quiet.

OBTAIN SHIPPING PAPERS.
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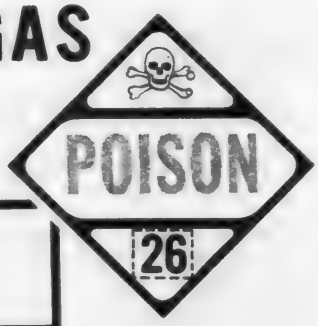
NON-FLAMMABLE GAS

POISON

POTENTIAL HAZARDS



FIRE OR EXPLOSION	May catch fire. Container may explode in heat of fire.
HEALTH	If inhaled may be fatal. Contact may cause burns to skin and eyes. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out. Evacuate area endangered by poison gas.
SPILL OR LEAK	Stop leak if without risk. Use water spray to reduce vapors. Do not touch spilled material. Isolate area until gas has dispersed. Evacuate area endangered by poison gas.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
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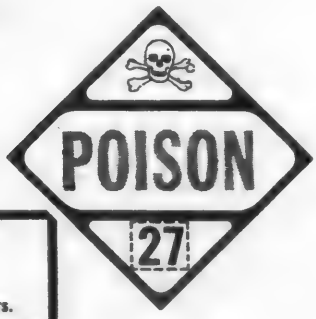
GAS

OXIDIZER, POISON, CORROSIVE



POTENTIAL HAZARDS

FIRE OR EXPLOSION	Reaction with fuels may be violent. May ignite combustibles (wood, paper, oil, etc.). Container may explode in heat of fire. Gas explosion hazard indoors, outdoors or in sewers.
HEALTH	If inhaled may be fatal. Vapor extremely irritating. Contact may cause burns to skin and eyes. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out. Evacuate area endangered by poison gas.
SPILL OR LEAK	Stop leak if without risk. Use water spray to reduce vapors. Do not touch spilled material. Keep combustibles (wood, paper, oil, etc.) away from spilled material. LARGE SPILLS: Dilute with large amounts of water and dike for later disposal. Isolate area until gas has dispersed. Evacuate area endangered by poison gas.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient warm and quiet.

OBTAIN SHIPPING PAPERS.
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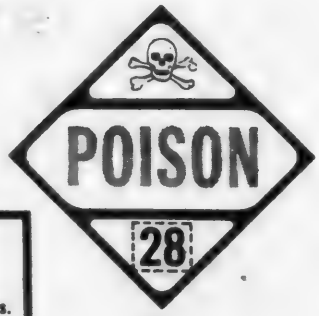
FLAMMABLE GAS

POISON



POTENTIAL HAZARDS

FIRE OR EXPLOSION	May be ignited by heat, sparks, flames. Flammable vapors may spread away from spill. Container may explode in heat of fire. Gas explosion hazard indoors, outdoors or in sewers.
HEALTH	If inhaled may be fatal. Contact may cause burns to skin and eyes. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF–CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out. Let burn unless leak can be stopped immediately. For massive fire in cargo area, use unmanned hose holder or monitor nozzles. Evacuate area endangered by poison gas.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Use water spray to reduce vapors. Do not touch spilled material. Isolate area until gas has dispersed. Evacuate area endangered by poison gas.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
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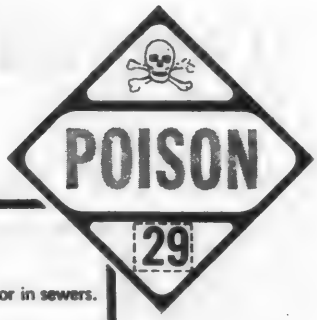
FLAMMABLE GAS

POISON-EXTREMELY HAZARDOUS



POTENTIAL HAZARDS

FIRE OR EXPLOSION	May be ignited by heat, sparks, flames. May ignite combustibles (wood, paper, oil, etc.). Reaction with fuels may be violent. Gas explosion and poison hazard indoors, outdoors or in sewers. Container may explode in heat of fire.
HEALTH	Vapors non-irritating, deaden sense of smell. If inhaled may be fatal. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Let burn unless leak can be stopped immediately. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out. Fight fire from maximum distance. Isolate area until gas has dispersed. Evacuate area endangered by poison gas.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Use water spray to reduce vapors. Isolate area until gas has dispersed. Evacuate area endangered by poison gas.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

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COMBUSTIBLE OR FLAMMABLE LIQUID

POTENTIAL HAZARDS

FIRE OR EXPLOSION	May be ignited by heat, sparks, flames. Container may explode in heat of fire. Flammable vapors may spread away from spill. Runoff to sewer may create fire or explosion hazard.
HEALTH	Vapor indoors may cause dizziness or suffocation. Fire may produce irritating or poisonous gases. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Use water spray to reduce vapors. LARGE SPILLS: Dike for later disposal. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material.
FIRST AID	Remove to fresh air. Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

FLAMMABLE LIQUID

CORROSIVE

POTENTIAL HAZARDS

FIRE OR EXPLOSION	May be ignited by heat, sparks, flames. Container may explode in heat of fire. Flammable vapors may spread away from spill. Runoff to sewer may create fire or explosion hazard.
HEALTH	Contact may cause burns to skin and eyes. If inhaled may be harmful. Fire may produce irritating or poisonous gases. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Use water spray to reduce vapors. Do not touch spilled material. LARGE SPILLS: Dike for later disposal. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient warm and quiet.

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FLAMMABLE LIQUID

POISON

POTENTIAL HAZARDS

FIRE OR EXPLOSION	May be ignited by heat, sparks, flames. Container may explode in heat of fire. Flammable vapors may spread away from spill. Runoff to sewer may create fire or explosion hazard.
HEALTH	If inhaled may be harmful. Contact may cause burns to skin and eyes. If swallowed may be fatal. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF–CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Use water spray to reduce vapors. Do not touch spilled material. LARGE SPILLS: Dike for later disposal. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

COMBUSTIBLE OR FLAMMABLE LIQUID

SELF REACTIVE OR THERMALLY UNSTABLE

POTENTIAL HAZARDS

FIRE OR EXPLOSION	May be ignited by heat, sparks, flames. Container may explode in heat of fire. Flammable vapors may spread away from spill. Runoff to sewer may create fire or explosion hazard.
HEALTH	Contact may cause burns to skin and eyes. Vapor indoors may cause dizziness or suffocation. Fire may produce irritating or poisonous gases. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles. Withdraw immediately in case of rising sound from venting safety device.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Use water spray to reduce vapors. LARGE SPILLS: Dike for later disposal. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material.
FIRST AID	Remove to fresh air. Use standard first aid procedures.

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COMBUSTIBLE OR FLAMMABLE LIQUID

CORROSIVE, SELF REACTIVE, OR THERMALLY UNSTABLE

POTENTIAL HAZARDS

FIRE OR EXPLOSION	May be ignited by heat, sparks, flames. Container may explode in heat of fire. Flammable vapors may spread away from spill. Runoff to sewer may create fire or explosion hazard.
HEALTH	Contact may cause burns to skin and eyes. If inhaled may be harmful. Fire may produce irritating or poisonous gases. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY. KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF–CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out. Withdraw immediately in case of rising sound from venting safety device. For massive fire in cargo area, use unmanned hose holder or monitor nozzles. If this is impossible, withdraw from area and let fire burn.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Use water spray to reduce vapors. Do not touch spilled liquid. LARGE SPILLS: Dike for later disposal. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

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COMBUSTIBLE OR FLAMMABLE LIQUID

POISON, SELF REACTIVE OR THERMALLY UNSTABLE

POTENTIAL HAZARDS

FIRE OR EXPLOSION	May be ignited by heat, sparks, flames. Container may explode in heat of fire. Flammable vapors may spread away from spill. Runoff to sewer may create fire or explosion hazard.
HEALTH	If inhaled may be fatal. If swallowed may be fatal. Contact may cause burns to skin and eyes. Fire may produce irritating or poisonous gases. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles If this is impossible, withdraw from area and let fire burn. Withdraw immediately in case of rising sound from venting safety device.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Use water spray to reduce vapors. Do not touch spilled liquid. LARGE SPILLS: Dike for later disposal. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

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PYROPHORIC LIQUIDS

POTENTIAL HAZARDS

	May ignite itself if exposed to air. May re-ignite after fire is extinguished. May burn rapidly with flare-burning effect. Runoff to sewer may create fire or explosion hazard.
HEALTH	Contact may cause burns to skin and eyes. If inhaled may be harmful. Fire may produce irritating or poisonous gases. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Flood with water. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out. For massive fires in cargo area, use unmanned hose holder or monitor nozzles.
SPILL OR LEAK	Stop leak if without risk. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. LARGE SPILLS: Dilute with large amounts of water and dike for later disposal.
FIRST AID	Remove to fresh air. Call physician. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient warm and quiet.

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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

FLAMMABLE SOLID

POTENTIAL HAZARDS

FIRE	May be ignited by heat, sparks, flames. May burn rapidly with flare-burning effect.
HEALTH	Contact may cause burns to skin and eyes. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Sweep small dry spills into dry metal containers and keep tightly covered. SMALL SPILLS: Flush area with water.
FIRST AID	Remove to fresh air. Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
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FLAMMABLE SOLID
POISON

POTENTIAL HAZARDS

FIRE	May be ignited by heat, sparks, flames. May burn rapidly with flare-burning effect.
HEALTH	Contact may cause burns to skin and eyes. If inhaled may be harmful. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING
APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Sweep small dry spills into dry metal containers and keep tightly covered. SMALL SPILLS: Flush area with water.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient warm and quiet.

OBTAIN SHIPPING PAPERS.
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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

FLAMMABLE SOLID

PYROPHORIC

POTENTIAL HAZARDS

FIRE	May ignite itself if exposed to air. May re-ignite after fire is extinguished. May burn rapidly with flare-burning effect.
HEALTH	Contact may cause burns to skin and eyes. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Flood with water. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. SMALL SPILLS: Flush area with water.
FIRST AID	Remove to fresh air. Call physician. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient warm and quiet.

OBTAIN SHIPPING PAPERS.
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FLAMMABLE SOLID

PYROPHORIC, POISON

FIRE	May ignite itself if exposed to air. May re-ignite after fire is extinguished. May burn rapidly with flare-burning effect.
HEALTH	If inhaled may be harmful Contact may cause burns to skin and eyes. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF–CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Flood with water. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. SMALL SPILLS: Flush area with water.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient warm and quiet.

OBTAIN SHIPPING PAPERS.
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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

FLAMMABLE SOLID

WATER REACTIVE

POTENTIAL HAZARDS

FIRE	May ignite itself if exposed to air. Contact with water produces flammable gas. May burn rapidly with flare-burning effect.
HEALTH	Contact may cause burns to skin and eyes. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	DO NOT USE WATER. SMALL FIRES: Dry chemical or CO_2. Move containers from fire area if without risk. Withdraw from area and let fire burn.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Do not get water inside containers. Sweep small dry spills into dry metal containers and keep tightly covered.
FIRST AID	Remove to fresh air. Call physician. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

FLAMMABLE SOLID

POISON, WATER REACTIVE

POTENTIAL HAZARDS

FIRE	May ignite itself if exposed to air. Contact with water produces flammable gas. May burn rapidly with flare-burning effect.
HEALTH	If inhaled may be harmful. Contact may cause burns to skin and eyes. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	DO NOT USE WATER. SMALL FIRES: Dry chemical or CO_2. Move containers from fire area if without risk. Withdraw from area and let fire burn.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Do not get water inside containers. Sweep small dry spills into dry metal containers and keep tightly covered.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient warm and quiet.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

FLAMMABLE SOLID

PYROPHORIC, WATER REACTIVE

POTENTIAL HAZARDS

FIRE	May ignite itself if exposed to air. May re-ignite after fire is extinguished. Contact with water produces flammable gas. May burn rapidly with flare-burning effect.
HEALTH	Contact may cause burns to skin and eyes. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	DO NOT USE WATER. SMALL FIRES: Dry chemical or CO_2. Move containers from fire area if without risk. Withdraw from area and let fire burn.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Do not get water inside containers. Sweep small dry spills into dry metal containers and keep tightly covered.
FIRST AID	Remove to fresh air. Call physician. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

FLAMMABLE SOLID

PYROPHORIC, POISON, WATER REACTIVE

POTENTIAL HAZARDS

FIRE	May ignite itself if exposed to air. May re-ignite after fire is extinguished. Contact with water produces flammable gas. May burn rapidly with flare-burning effect.
HEALTH	If inhaled may be harmful. Contact may cause burns to skin and eyes. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	DO NOT USE WATER. SMALL FIRES: Dry chemical or CO_2. Move containers from fire area if without risk. Withdraw from area and let fire burn.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Do not get water inside containers. Sweep small dry spills into dry metal containers and keep tightly covered.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient warm and quiet.

OBTAIN SHIPPING PAPERS.
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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

FLAMMABLE SOLID

WET-DESENSITIZED EXPLOSIVE

POTENTIAL HAZARDS

FIRE	May be ignited by heat, sparks, flames. May burn rapidly with flare-burning effect.
HEALTH	Contact may cause burns to skin and eyes. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Flood with water. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles. Do not move cargo or vehicle if cargo has been exposed to heat.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Do not touch spilled material. SMALL SPILLS: Flush area with water.
FIRST AID	Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

OXIDIZER

POTENTIAL HAZARDS

FIRE	May ignite combustibles (wood, paper, oil, etc.). Reaction with fuels may be violent.
HEALTH	Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out. Fight fire from maximum distance. For massive fire in cargo area, use unmanned hose holder or monitor nozzles.
SPILL OR LEAK	Stop leak if without risk. Do not touch spilled material. Keep combustibles (wood, paper,oil, etc.) away from spilled material. LARGE SPILLS: Dike for later disposal. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. Sweep small dry spills into dry metal containers and keep tightly covered.
FIRST AID	Remove contaminated clothing and shoes. Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

OXIDIZER

CORROSIVE

POTENTIAL HAZARDS

FIRE	May ignite combustibles (wood, paper, oil, etc.). Reaction wtih fuels may be violent.
HEALTH	Contact may cause burns to skin and eyes. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out. Fight fire from maximum distance. For massive fire in cargo area, use unmanned hose holder or monitor nozzles.
SPILL OR LEAK	Stop leak if without risk. Do not touch spilled material. Keep combustibles (wood, paper, oil, etc.) away from spilled material. LARGE SPILLS: Dike for later disposal. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. Sweep small dry spills into dry metal containers and keep tightly covered.
FIRST AID	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
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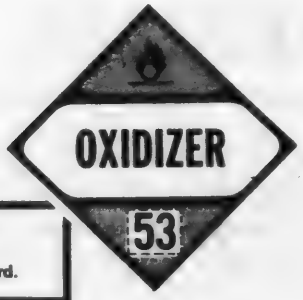
OXIDIZER

POISON-CORROSIVE

POTENTIAL HAZARDS



FIRE OR EXPLOSION	May ignite combustibles (wood, paper, oil, etc.). Mixtures with fuels may explode. Runoff to sewer may create fire or explosion hazard.
HEALTH	If inhaled may be fatal. Contact may cause burns to skin and eyes. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY. KEEP UPWIND. ISOLATE HAZARD AREA. WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out. Fight fire from maximum distance. For massive fire in cargo area, use unmanned hose holder or monitor nozzles.
SPILL OR LEAK	Stop leak if without risk. Use water spray to reduce vapors. Do not touch spilled material. Keep combustibles (wood, paper, oil, etc.) away from spilled material. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. LARGE SPILLS: Dilute with large amounts of water and dike for later disposal. Isolate area until gas has dispersed.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. Remove contaminated clothing and shoes. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

OXIDIZER

SELF REACTIVE OR THERMALLY UNSTABLE

POTENTIAL HAZARDS

FIRE OR EXPLOSION	May ignite combustibles (wood, paper, oil, etc.). Mixtures with fuels may explode. Runoff to sewer may create fire or explosion hazard. Container may explode in heat of fire. May explode from friction, shock, heat or contamination.
HEALTH	Contact may cause burns to skin and eyes. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AWAY.
WEAR FULL PROTECTIVE CLOTHING.

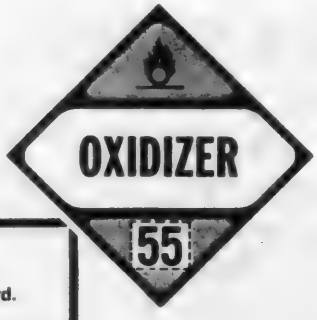
FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Flood with water. Cool containers with water from maximum distance until well after fire is out. Fight fire from maximum distance. For massive fire in cargo area, use unmanned hose holder or monitor nozzles.
SPILL OR LEAK	Stop leak if without risk. Keep combustibles (wood, paper, oil, etc.) away from spilled material. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. LARGE SPILLS: Dilute with large amounts of water and dike for later disposal.
FIRST AID	Remove contaminated clothing and shoes. Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

OXIDIZER

CORROSIVE, SELF REACTIVE OR THERMALLY UNSTABLE

POTENTIAL HAZARDS



FIRE	May ignite combustibles (wood, paper, oil, etc.). Mixtures with fuels may explode. Runoff to sewer may create fire or explosion hazard. Container may explode in heat of fire. May explode from friction, shock, heat or contamination.
HEALTH	Contact may cause burns to skin and eyes. Fire may produce irritating or poisonous gases. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Flood with water. Cool containers with water from maximum distance until well after fire is out. Fight fire from maximum distance. For massive fire in cargo area, use unmanned hose holder or monitor nozzles.
SPILL OR LEAK	Stop leak if without risk. Do not touch spilled material. Keep combustibles (wood, paper, oil, etc.) away from spilled material. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. LARGE SPILLS: Dilute with large amounts of water and dike for later disposal.
FIRST AID	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes.

OBTAIN SHIPPING PAPERS.
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OXIDIZER

POISON, SELF REACTIVE OR THERMALLY UNSTABLE

POTENTIAL HAZARDS

FIRE OR EXPLOSION	May ignite combustibles (wood, paper, oil, etc.). Mixtures with fuels may explode. Container may explode in heat of fire. May explode from friction, shock, heat or contamination. Runoff to sewer may create fire or explosion hazard.
HEALTH	If inhaled may be fatal. Contact may cause burns to skin and eyes. Runoff may pollute water supply.

EMERGENCY ACTION

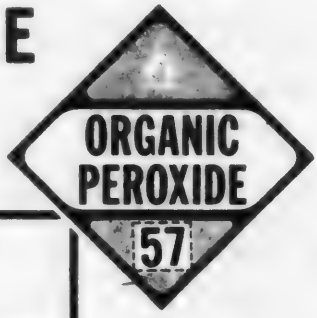
KEEP UNNECESSARY PEOPLE AWAY. KEEP UPWIND. ISOLATE HAZARD AREA. WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Flood with water. Cool containers with water from maximum distance until well after fire is out. Fight fire from maximum distance. For massive fire in cargo area, use unmanned hose holder or monitor nozzles.
SPILL OR LEAK	Stop leak if without risk. Do not touch spilled material. Keep combustibles (wood, paper, oil, etc.) away from spilled material. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. LARGE SPILLS: Dilute with large amounts of water and dike for later disposal.
FIRST AID	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

ORGANIC PEROXIDE

POTENTIAL HAZARDS



FIRE OR EXPLOSION	May be ignited by heat, sparks, flames. May ignite combustibles (wood, paper, oil, etc.) Mixtures with fuels may explode. Container may explode in heat of fire. May explode from friction, shock, heat or contamination Runoff to sewer may create fire or explosion hazard.
HEALTH	Contact may cause burns to skin and eyes. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Flood with water. Cool containers with water from maximum distance until well after fire is out. Fight fire from maximum distance. For massive fire in cargo area, use unmanned hose holder or monitor nozzles.
SPILL OR LEAK	Stop leak if without risk. Do not touch spilled material. Keep combustibles (wood, paper, oil, etc.) away from spilled material. LARGE SPILLS: Dilute with large amounts of water and dike for later disposal.
FIRST AID	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
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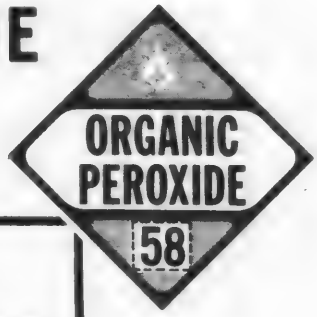
ORGANIC PEROXIDE

HIGHLY SENSITIVE, NEED REFRIGERATION



POTENTIAL HAZARDS

FIRE OR EXPLOSION	May ignite itself if exposed to air. May be ignited by heat, sparks, flames. May ignite combustibles (wood, paper, oil, etc.). May burn rapidly with flare-burning effect. May explode from friction, shock, heat or contamination. Runoff to sewer may create fire or explosion hazard.
HEALTH	Contact may cause burns to skin and eyes. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

LOSS OF COOLING	Specified temperature of material must be maintained to prevent explosion. Obtain dry ice or liquid nitrogen. If no source of cooling can be obtained evacuate area.
FIRE	In confined space such as refrigerator use carbon dioxide or liquid nitrogen to cool material and exclude air. Water may raise termperature of material above decomposition point. Fight fire from maximum distance. Withdraw if fire in cargo area is massive.
SPILL OR LEAK	SMALL SPILLS: Deposit material in a small trench and ignite with torch from safe distance. Flush area with water.
FIRST AID	Remove to fresh air. Call physician. Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
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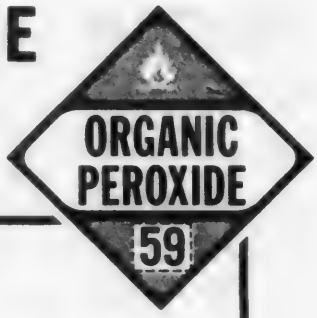
ORGANIC PEROXIDE

EXTREMELY SENSITIVE



POTENTIAL HAZARDS

FIRE OR EXPLOSION	May ignite itself if exposed to air. May be ignited by heat, sparks, flames. May ignite combustibles (wood, paper, oil, etc.). May burn rapidly with flare-burning effect. Mixtures with fuels may explode. Runoff to sewer may create fire or explosion hazard. May explode from loss of refrigeration, friction, shock, heat, or contamination.
HEALTH	Contact may cause burns to skin and eyes. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY. KEEP UPWIND.
ISOLATE HAZARD AREA. WEAR FULL PROTECTIVE CLOTHING. SPECIFIED TEMPERATURE OF MATERIAL MUST BE MAINTAINED TO PREVENT EXPLOSION.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Flood with water. Cool containers with water from maximum distance until well after fire is out. Fight fire from maximum distance. For massive fire in cargo area, use unmanned hose holder or monitor nozzles.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Do not touch spilled material. Keep combustibles (wood, paper, oil, etc.) away from spilled material. LARGE SPILLS: Dilute with large amounts of water and dike for later disposal.
FIRST AID	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Keep patient warm and quiet

OBTAIN SHIPPING PAPERS.
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POISON

HIGHLY TOXIC

POTENTIAL HAZARDS

FIRE	May catch fire.
HEALTH	If inhaled may be harmful. Skin contact poisonous. If swallowed may be fatal. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF–CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk.
SPILL OR LEAK	Stop leak if without risk. Do not touch spilled material. Use water spray to reduce vapors. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. LARGE SPILLS: Dike for later disposal.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. Remove contaminated clothing and shoes. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
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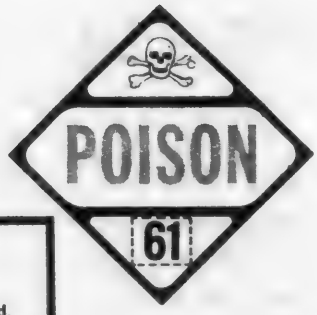
POISON

HIGHLY TOXIC, COMBUSTIBLE



POTENTIAL HAZARDS

FIRE OR EXPLOSION	May be ignited by heat, sparks, flames. Container may explode in heat of fire. Flammable vapors may spread away from spill. Runoff to sewer may create fire or explosion hazard.
HEALTH	If inhaled may be harmful. Skin contact poisonous. If swallowed may be fatal. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out.
SPILL OR LEAK	Stop leak if without risk. No flares, smoking or flames in hazard area. Do not touch spilled material. Use water spray to reduce vapors. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. LARGE SPILLS: Dike for later disposal.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. Remove contaminated clothing and shoes. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

POISON

EXTREMELY TOXIC

POTENTIAL HAZARDS

FIRE	May catch fire.
HEALTH	If inhaled may be fatal. Contact may cause burns to skin and eyes. If swallowed may be fatal. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF–CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk.
SPILL OR LEAK	Stop leak if without risk. Do not touch spilled material. Use water spray to reduce vapors. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. LARGE SPILLS: Dike for later disposal.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. Remove contaminated clothing and shoes. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
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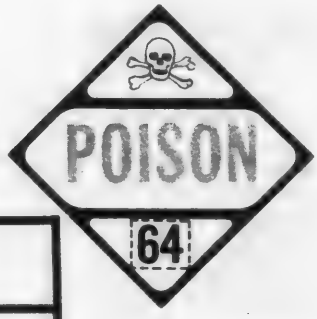
POISON

EXTREMELY TOXIC BY SKIN ABSORPTION



POTENTIAL HAZARDS

FIRE	May catch fire.
HEALTH	If inhaled may be fatal. Skin contact poisonous. Contact may cause burns to skin and eyes. If swallowed may be fatal. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk.
SPILL OR LEAK	Stop leak if without risk. Do not touch spilled material. Use water spray to reduce vapors. SMALL SPILLS: Take up with sand,earth, or other noncombustible absorbent material. LARGE SPILLS: Dike for later disposal.
FIRST AID	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Speed in removing material from skin is of extreme importance. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
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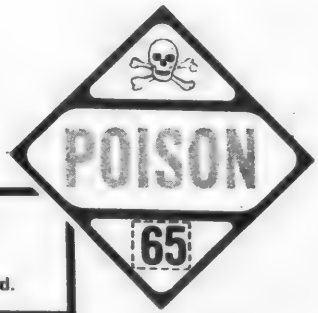
POISON

EXTREMELY TOXIC, FLAMMABLE

POTENTIAL HAZARDS



FIRE OR EXPLOSION	May be ignited by heat, sparks, flames. Flammable vapors may spread away from spill. Container may explode in heat of fire. Runoff to sewer may create fire or explosion hazard.
HEALTH	If inhaled may be fatal. Contact may cause burns to skin and eyes. If swallowed may be fatal. Runoff may pollute water supply.

EMERGENCY ACTION

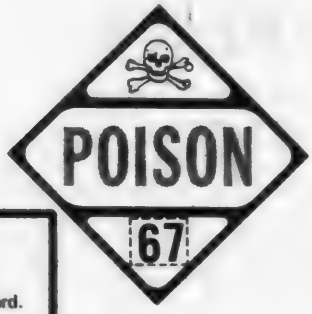
KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out.
SPILL OR LEAK	Stop leak if without risk. No flares, smoking or flames in hazard area. Do not touch spilled material. Use water spray to reduce vapors. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. LARGE SPILLS: Dike for later disposal.
FIRST AID	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

POISON

EXTREMELY TOXIC BY SKIN ABSORPTION, FLAMMABLE



POTENTIAL HAZARDS

FIRE OR EXPLOSION	May be ignited by heat, sparks, flames. Container may explode in heat of fire. Runoff to sewer may create fire or explosion hazard.
HEALTH	If inhaled may be fatal. Skin contact poisonous. If swallowed may be fatal. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out. Move containers from fire area if without risk.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Do not touch spilled material. Stop leak if without risk. LARGE SPILLS: Dike for later disposal. Use water spray to reduce vapors. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material.
FIRST AID	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. Remove contaminated clothing and shoes. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

RADIOACTIVE

LOWER HAZARD-NO PLACARDING REQUIRED-

POTENTIAL HAZARDS

HEALTH	External radiation hazard (like X-rays) low. No immediate threat to health or life. Hazard may be internal due to breathing vapor or dust, or contamination of skin, open cuts, etc. Hazard may be external (like X-rays) from contamination on skin or exposure to unshielded material.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY. KEEP UPWIND.
ISOLATE HAZARD AREA.

DELAY CLEAN-UP UNTIL ARRIVAL OF
QUALIFIED RADIATION MONITORING ASSISTANCE.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move undamaged packages from fire area if without risk.
SPILL OR LEAK	Do not touch spilled material or leaking or damaged packages. Move undamaged packages from spill area. If damaged packages must be moved use gloves to place them into covered metal container. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. Dike for later decontamination and disposal.
FIRST AID	Call physician. Use standard first aid procedures. Remove contaminated clothing and shower thoroughly with soap and water. Advise rescue personnel and physicians that persons or equipment may be radioactively contaminated.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

RADIOACTIVE

POTENTIAL HAZARDS

HEALTH	Radiation hazard may be internal due to breathing vapor or dust,or contamination of skin, open cuts, etc. Radiation hazard may be external (like X-rays) from contamination on skin or exposure to unshielded material. Prolonged exposure may be a threat to health or life. Effects of radiation may be delayed.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. DELAY CLEAN-UP UNTIL ARRIVAL OF QUALIFIED RADIATION MONITORING ASSISTANCE.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Fight fire from maximum distance. Move undamaged packages from fire area if without risk. Do NOT move damaged packages.
SPILL OR LEAK	Do not touch spilled material or leaking or damaged packages. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. LARGE SPILLS: Dike for later decontamination and disposal. Do not enter spill area unless absolutely necessary to save life. Limit entries to shortest possible time. Alternate persons for entry if possible.
FIRST AID	Call physician. Use standard first aid procedures. Remove contaminated clothing and shower throughly with soap and water. Advise rescue personnel and physicians that persons or equipment may be radioactively contaminated.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

RADIOACTIVE

OXIDIZER

POTENTIAL HAZARDS

FIRE	May ignite combustibles (wood, paper, oil, etc.). Reaction with fuels may be violent.
HEALTH	Radiation hazard may be internal due to breathing vapor or dust, or contamination of skin, open cuts, etc. External radiation hazard (like X-rays) low. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY. KEEP UPWIND. ISOLATE HAZARD AREA. WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. DELAY CLEAN-UP UNTIL ARRIVAL OF QUALIFIED RADIATION MONITORING ASSISTANCE.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Flood with water. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out.
SPILL OR LEAK	Stop leak if without risk. Sweep small dry spills into dry metal containers and keep tightly covered. Move undamaged packages from spill area. Keep combustibles (wood, paper, oil, etc.) away from spilled material.
FIRST AID	Call physician. Use standard first aid procedures. Remove contaminated clothing and shower thoroughly with soap and water. Advise rescue personnel and physicians that persons or equipment may be radioactively contaminated.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

RADIOACTIVE
CORROSIVE
POTENTIAL HAZARDS

HEALTH	Radiation hazard may be internal due to breathing vapor or dust, or contamination of skin, open cuts, etc. External radiation hazard (like X-rays) low. Contact may cause burns to skin and eyes. If inhaled may be harmful. Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY. KEEP UPWIND. ISOLATE HAZARD AREA. WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. DELAY CLEAN-UP UNTIL ARRIVAL OF QUALIFIED RADIATION MONITORING ASSISTANCE.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out.
SPILL OR LEAK	Stop leak if without risk. Move undamaged packages from spill area. Dilute spill with large amounts of water and dike for later disposal
FIRST AID	Call physician. Use standard first aid procedures. Remove contaminated clothing and shower thoroughly with soap and water. Advise rescue personnel and physicians that persons or equipment may be radioactively contaminated.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

RADIOACTIVE

PYROPHORIC

POTENTIAL HAZARDS

FIRE	May ignite itself if exposed to air. May re-ignite after fire is extinguished. May burn rapidly with flare-burning effect.
HEALTH	Radiation hazard may be internal due to breathing vapor or dust, or contamination of skin, open cuts, etc. External radiation hazard (like X-rays) low.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY. KEEP UPWIND.
ISOLATE HAZARD AREA. WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. DELAY CLEAN-UP UNTIL ARRIVAL OF QUALIFIED RADIATION MONITORING ASSISTANCE.

FIRE	SMALL FIRES: Metal-X, dry powder, sand or G-1. LARGE FIRES: Flood with water. Do not use water spray. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out.
SPILL OR LEAK	Sweep small spill into metal containers and keep under water or mineral oil. Move undamaged packages from spill area.
FIRST AID	Call physician. Use standard first aid procedures. Remove contaminated clothing and shower thoroughly with soap and water. Advise rescue personnel and physicians that persons or equipment may be radioactively contaminated.

OBTAIN. SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

RADIOACTIVE

POISON, CORROSIVE, OXIDIZER

(URANIUM HEXAFLUORIDE (UF_6))

POTENTIAL HAZARDS

FIRE	May ignite combustibles (wood, paper, oil, etc.). Reaction with fuels may be violent.
HEALTH	If inhaled may be fatal. Contact may cause burns to skin and eyes. External radiation hazard (like X-rays) low. Reaction with air produces white cloud that settles as dust.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY. KEEP UPWIND. ISOLATE HAZARD AREA. WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. DELAY CLEAN-UP UNTIL ARRIVAL OF QUALIFIED RADIATION MONITORING ASSISTANCE.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out. Do not get water inside container.
SPILL OR LEAK	Use water spray to reduce vapors. Attempt to freeze leakage by cooling at point of opening with water or CO_2. Attempt to stop leakage by using wooden plugs in the opening. SMALL SPILLS: Flush area with water. LARGE SPILLS: Dilute with large amounts of water and dike for later disposal.
FIRST AID	Call physician. Use standard first aid procedures. Remove contaminated clothing and shower thoroughly with soap and water. Advise rescue personnel and physician that persons or equipment may be radioactively contaminated.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

RADIOACTIVE

EXTREMELY HAZARDOUS

(ACID SOLUTIONS OF PLUTONIUM NITRATE)

POTENTIAL HAZARDS

HEALTH	External radiation hazard (like X-rays) relatively low. Breathing of vapor or dust or contact of skin with spill material extremely dangerous due to internal radiation. An Extremely radiotoxic material when taken into body.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY. KEEP UPWIND. ISOLATE HAZARD AREA. WEAR SELF–CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. DELAY CLEAN–UP ARRIVAL OF QUALIFIED RADIATION MONITORING ASSISTANCE.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Fight fire from maximum distance. Move undamaged packages from fire area if without risk. Do NOT move damaged packages.
SPILL OR LEAK	Do not touch spilled material or leaking or damaged packages. Move undamaged packages from spill area. Do not enter spill area unless absolutely necessary to save life. Limit entries to shortest possible time. Alternate persons for entry if possible.
FIRST AID	Call physician. Use standard first aid procedures. Remove contaminated clothing and shower thoroughly with soap and water. Advise rescue personnel and physicians that persons or equipment may be radioactively contaminated. Effects of radiation may be delayed.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

CORROSIVE

POTENTIAL HAZARDS

FIRE	May catch fire.
HEALTH	Contact may cause burns to skin and eyes. Vapor extremely irritating. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out.
SPILL OR LEAK	Stop leak if without risk. Do not touch spilled material. SMALL SPILLS: Flush area with water. LARGE SPILLS: Dilute with large amounts of water and dike for later disposal.
FIRST AID	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

CORROSIVE

POISON

POTENTIAL HAZARDS

FIRE	May catch fire.
HEALTH	Contact may cause burns to skin and eyes. If inhaled may be harmful. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF–CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out.
SPILL OR LEAK	Stop leak if without risk. Do not touch spilled material. SMALL SPILLS: Flush area with water. LARGE SPILLS: Dilute with large amounts of water and dike for later disposal.
FIRST AID	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

CORROSIVE

HOD (HEAT OF DILUTION)

POTENTIAL HAZARDS

FIRE OR EXPLOSION	May catch fire. Explosive concentrations of gas may accumulate in tanks containing acid.
HEALTH	Contact may cause burns to skin and eyes. Vapor extremely irritating. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out. Do not get water inside container.
SPILL OR LEAK	Stop leak if without risk. Do not touch spilled material. SMALL SPILLS: Flush area with water. LARGE SPILLS: Dilute with large amounts of water and dike for later disposal. Do not get water inside containers.
FIRST AID	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

CORROSIVE

COMBUSTIBLE

POTENTIAL HAZARDS

FIRE OR EXPLOSION	May be ignited by heat, sparks, flames. Flammable vapors may spread away from spill. Container may explode in heat of fire. Runoff to sewer may create fire or explosion hazard.
HEALTH	Contact may cause burns to skin and eyes. Vapor extremely irritating. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Do not touch spilled material. SMALL SPILLS: Take up with sand, earth, or other noncombustible absorbent material. LARGE SPILLS: Dilute with large amounts of water and dike for later disposal.
FIRST AID	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

CORROSIVE

POISON, HOD (HEAT OF DILUTION)

POTENTIAL HAZARDS

FIRE OR EXPLOSION	May catch fire. Explosive concentrations of gas may accumulate in tanks containing acid.
HEALTH	Contact may cause burns to skin and eyes. If inhaled may be harmful. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Water spray or fog. Move containers from fire area if without risk. Cool containers with water from maximum distance until well after fire is out. Do not get water inside container.
SPILL OR LEAK	Stop leak if without risk. Use water spray to reduce vapors. Do not touch spilled material. SMALL SPILLS: Flush area with water. LARGE SPILLS: Dilute with large amounts of water and dike for later disposal. Do not get water inside containers.
FIRST AID	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

CORROSIVE

COMBUSTIBLE, POISON

POTENTIAL HAZARDS

FIRE OR EXPLOSION	May be ignited by heat, sparks, flames. Flammable vapors may spread away from spill. Container may explode in heat of fire. Runoff to sewer may create fire or explosion hazard.
HEALTH	Contact may cause burns to skin and eyes. If inhaled may be harmful. Runoff may pollute water supply.

EMERGENCY ACTION

KEEP UNNECESSARY PEOPLE AWAY.
KEEP UPWIND. ISOLATE HAZARD AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.

FIRE	SMALL FIRES: Dry chemical or CO_2. LARGE FIRES: Foam or water. Move containers from fire area if without risk. Stay away from ends of tanks. Cool containers with water from maximum distance until well after fire is out.
SPILL OR LEAK	No flares, smoking or flames in hazard area. Stop leak if without risk. Do not touch spilled material. SMALL SPILLS: Take up with sand,earth, or other noncombustible absorbent material. LARGE SPILLS: Dilute with large amounts of water and dike for later disposal.
FIRST AID	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. In case of contact with material immediately flush skin or eyes with running water for at least 15 minutes. Speed in removing material from skin is of extreme importance. Keep patient warm and quiet. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL ASSISTANCE IN HANDLING AN EMERGENCY, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

AUTHORITY: Transportation of Explosives Act, 18 U.S.C. 831–835, section 6 of the Department of Transportation Act, 49 U.S.C. 1655; Title VI and section 902(h) of the Federal Aviation Act of 1958, (49 U.S.C. 1421–1430, 1472(h), and 1655(c)); Dangerous Cargo Act, as amended, (46 U.S.C. 170); Tank Vessel Act of 1936, (46 U.S.C. 391a, 46 U.S.C. 375, 46 U.S.C. 416, 49 U.S.C. 1655(b)(1)), 49 CFR 1.46(b).

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W. J. BURNS,
Director, Office of Hazardous Materials.

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